HEALTH FEDERATION
OF PHILADELPHIA

GOOD MORNING and WELCOME!

Care and Treatment of Families Impacted by Opioid Use Disorder

Friday, November 19, 2021

- Please complete Program Pre-Test (link in Chat Box)

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Care and Treatment of Families Impacted by Opioid Use Disorder

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Emily Rosenthal, MD
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Financial Disclosures

Our presenters today do not have any financial relationships or commercial interests to disclose.

OBJECTIVES

- Discuss the impact of OUD on mothers and infants
- Review the elements of a compassionate approach and treatment options for perinatal OUD
- Describe care for opioid-exposed newborns, including support for mother/baby bonding in the NICU and after discharge
- Identify strategies to support and encourage women with OUD.

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The Impact of Opioid Use Disorder on Mothers and Infants

Laura Hart, MD

Roschanak Mossabeb, MD

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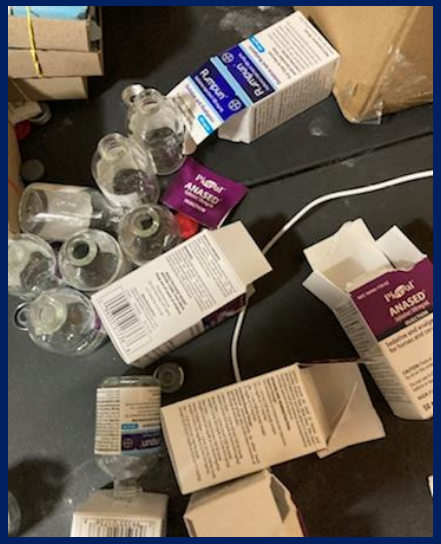
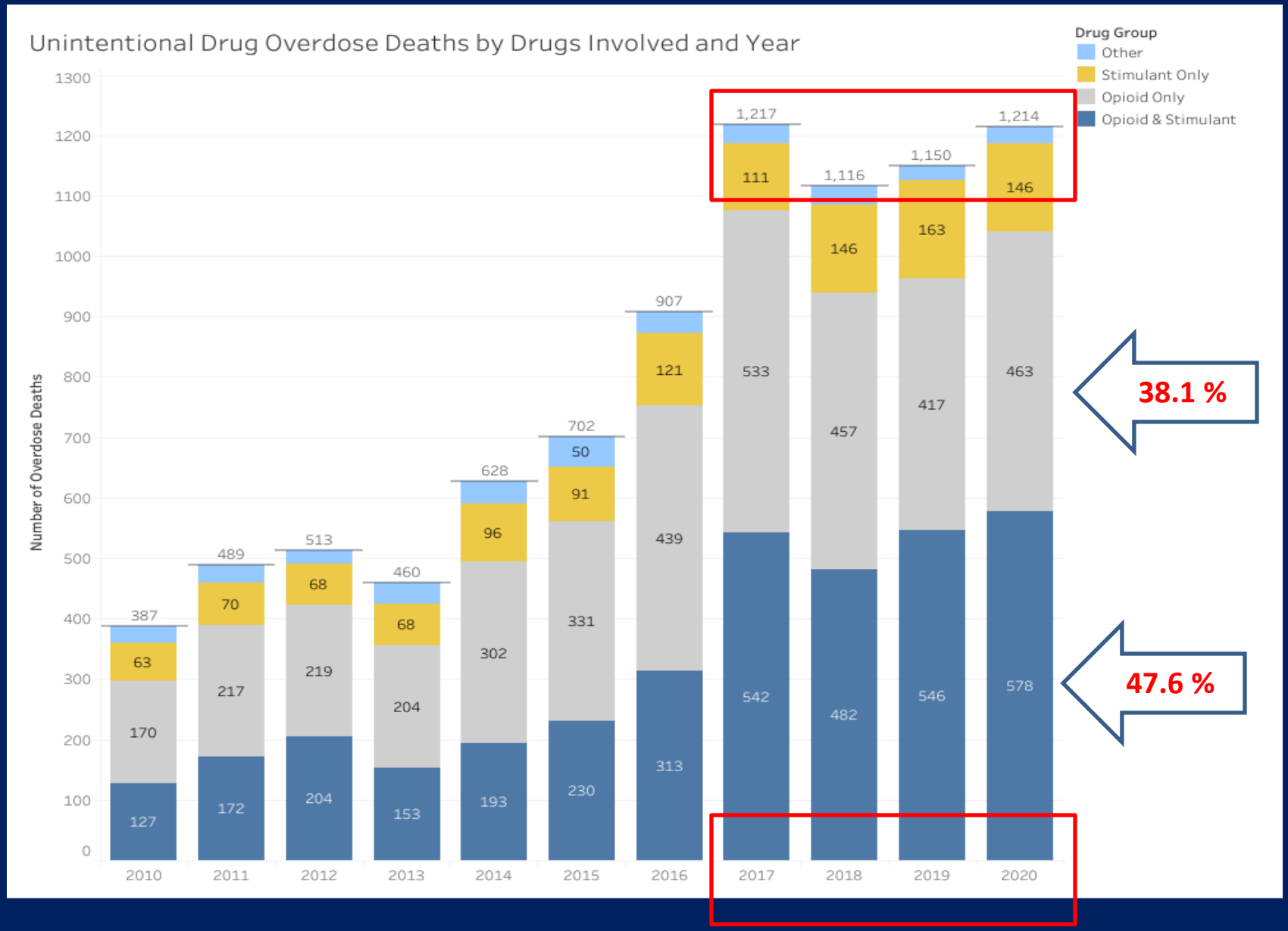
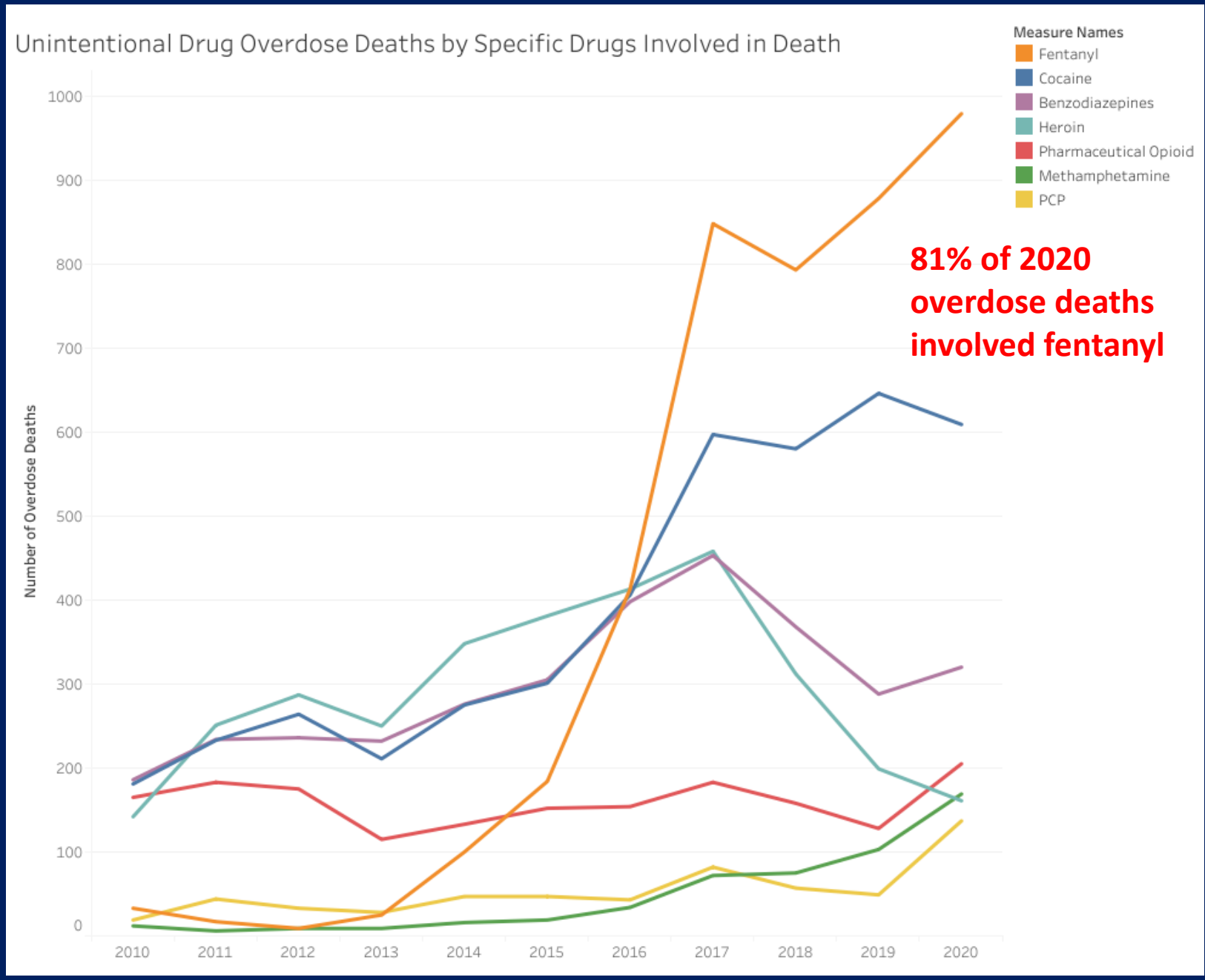
Magnitude of the Opioid Crisis in Philadelphia

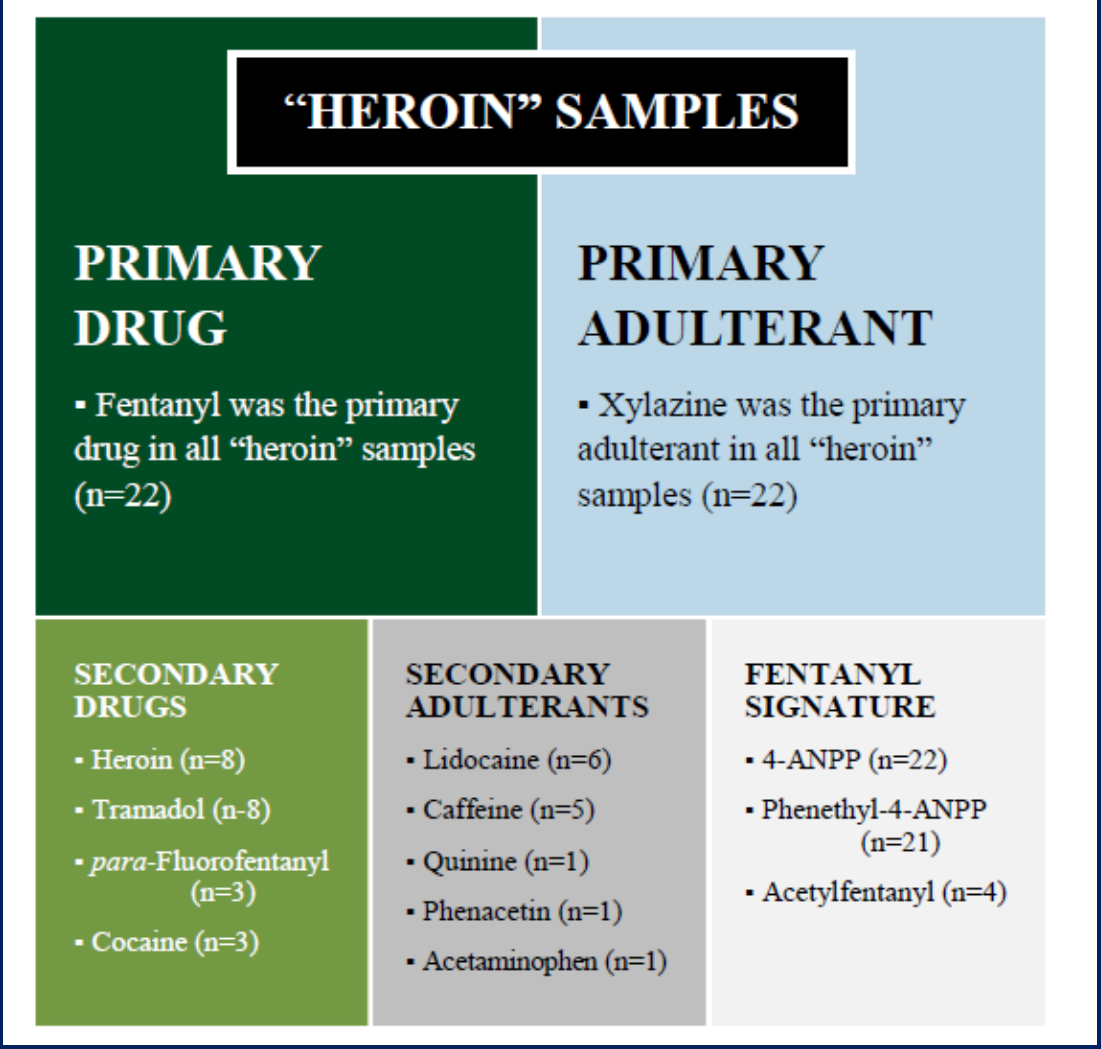




Data Source: Philadelphia Medical Examiner's Office - updated yearly

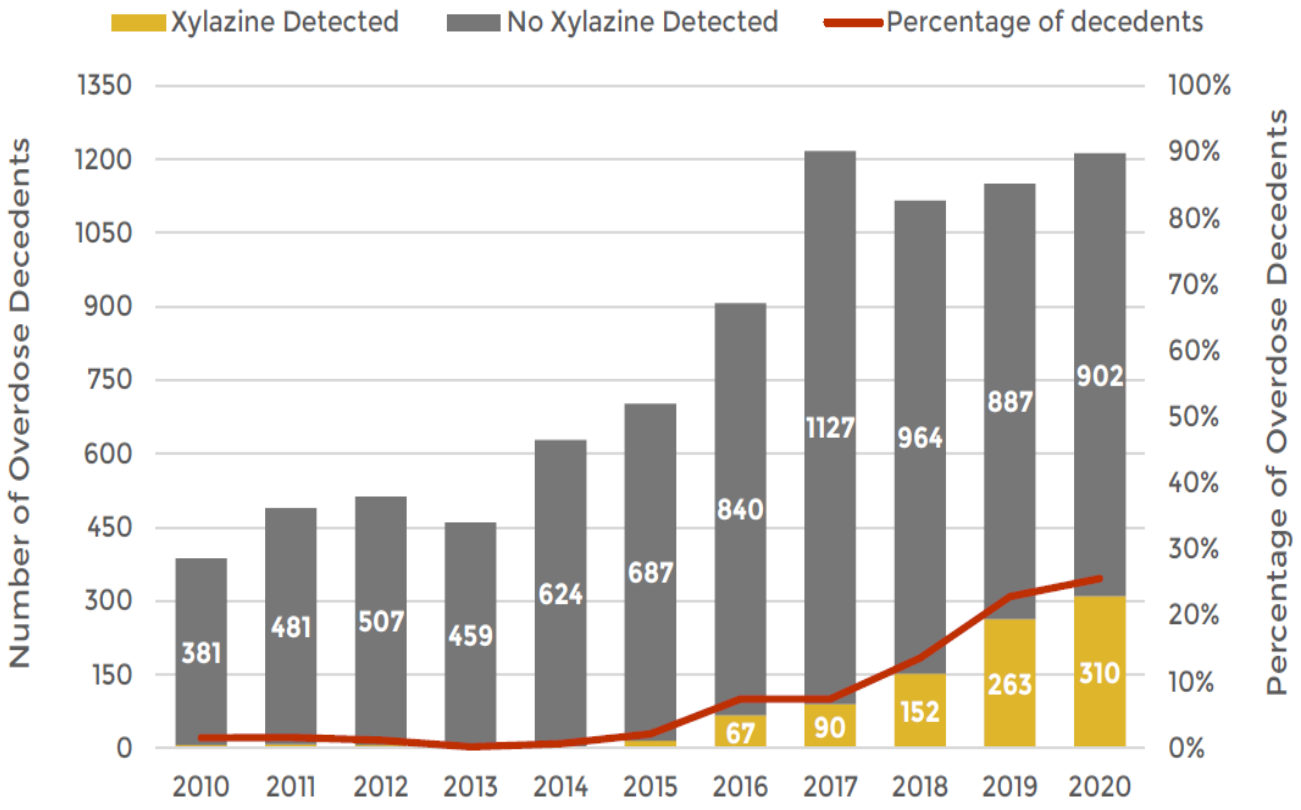

Unintentional Drug Overdose Deaths by Specific Drugs Involved in Death
Measure Names
Fentanyl
Cocaine
Benzodiazepines
Heroin
Pharmaceutical Opioid
Methamphetamine
PCP
Number of Overdose Deaths
1000
900
800
700
600
500
400
300
200
100
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
81% of 2020 overdose deaths involved fentanyl

Drug Supply Assessment 2021 Q1 Philadelphia, PA



Source: Drug Supply Assessment: Q1 2021, Philadelphia, PA, Center for Forensic Science Research and Education, 2021

Xylazine detections among all overdose decedents, Philadelphia, PA 2010-2020

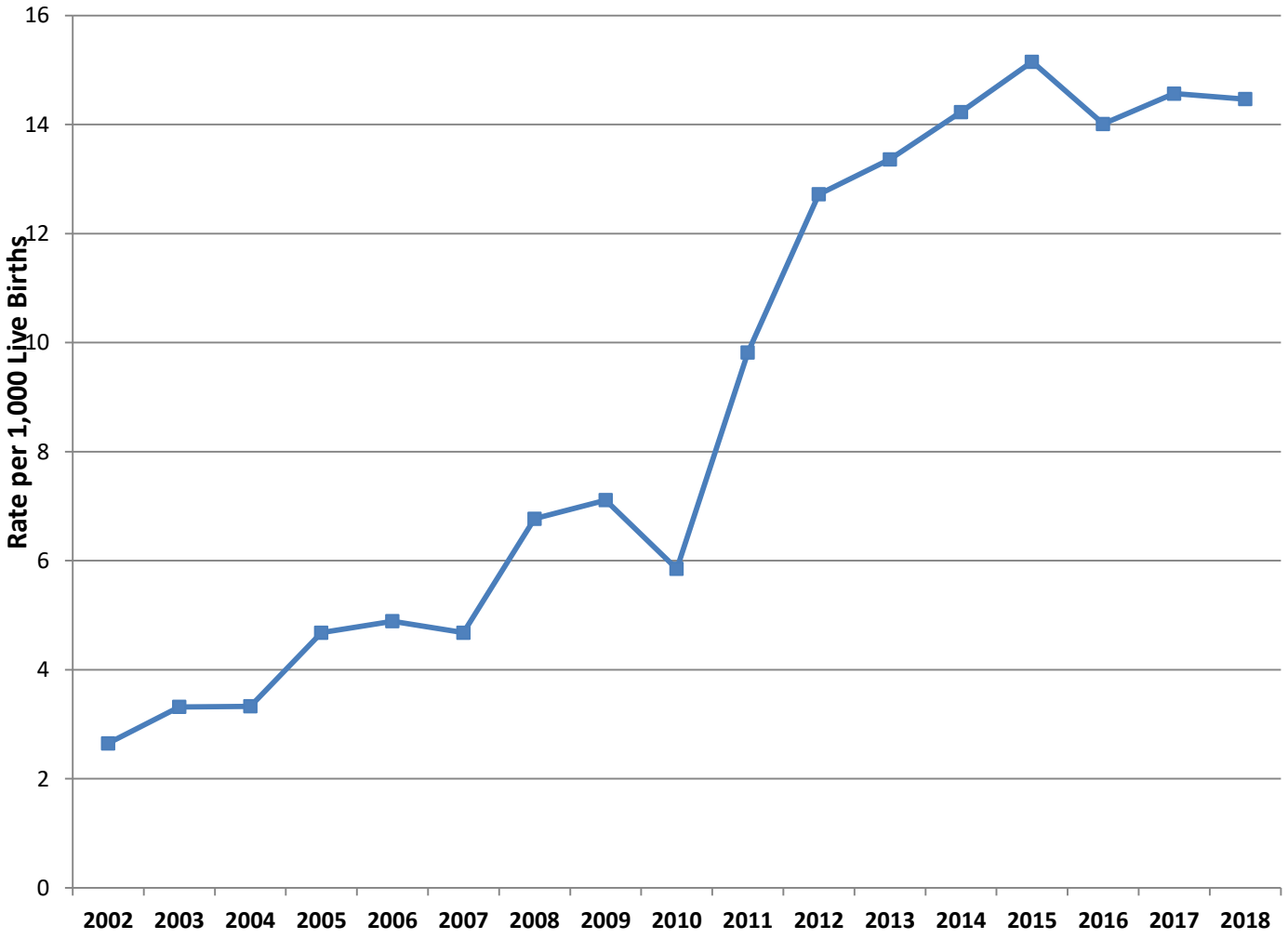


Data source: Philadelphia Medical Examiner's Office

Xylazine: aka “Tranq”

- Approved by FDA for veterinary medicine for procedural sedation
  - In combination with opioids enables use of lower doses and enhances sedation/analgesia
- Alpha-2 adrenergic agonist- stimulates central alpha-2 receptors
- Major clinical effect = profound sedation
  - No effect on RR
  - Blunted response to hypoxia with airway occlusion
  - Does not cause bradycardia/hypotension

Rate of Maternal Opioid Use or Dependence per 1,000 Live Hospital Births by Year, 2002-2018



DESIGNATED
Baby Friendly
2018-2023

Neonatal Abstinence Syndrome

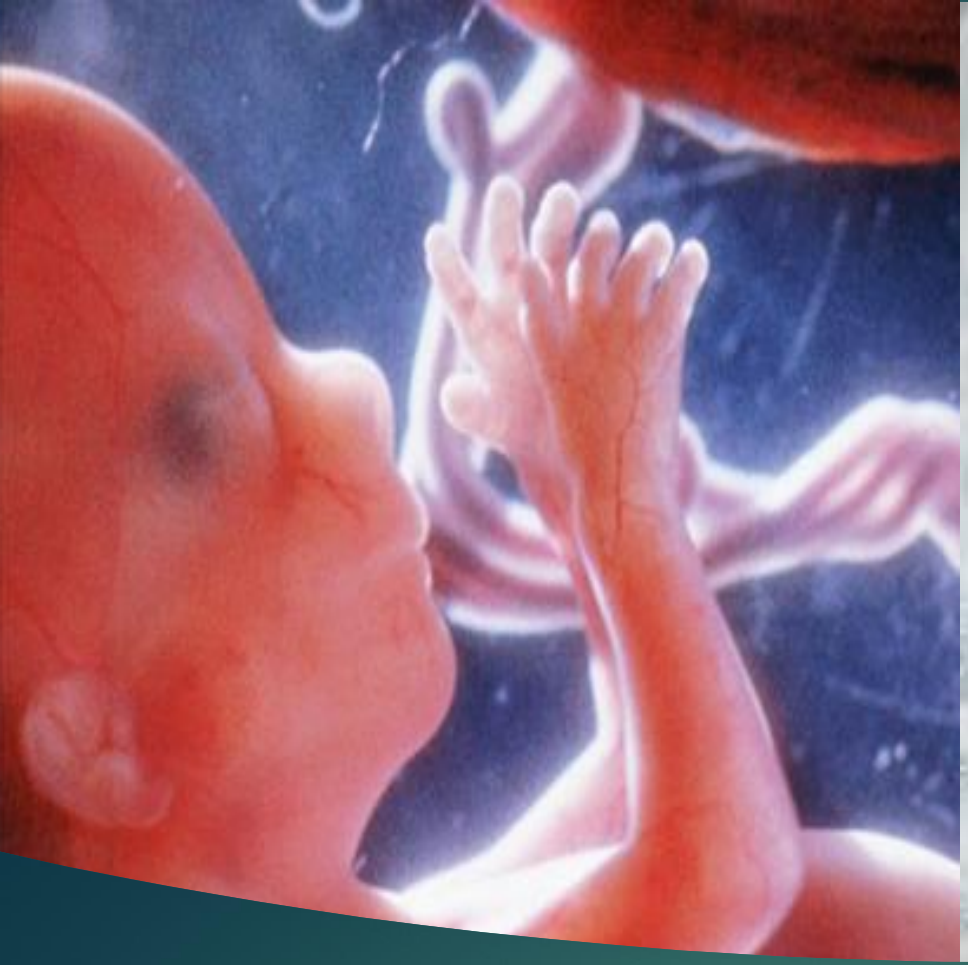
ROSCHANAK MOSSABEB, MD

TEMPLE UNIVERSITY HOSPITAL

Drexel
UNIVERSITY

Objectives

- Defining Neonatal Abstinence Syndrome
- Incidence
- Commonly used/abused drugs
- Signs and symptoms/complications
- Developmental outcome
- Treatment options
- Support for mother/infant bonding in the NICU & after discharge



The clock starts in utero

In 2017 US Department of Health & Human Services declared to Opioid crisis in the US a public health emergency

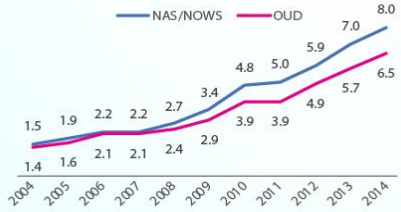
Rising Number of NAS

DRAMATIC INCREASES IN MATERNAL OPIOID USE DISORDER AND NEONATAL ABSTINENCE SYNDROME

Opioid use during pregnancy can result in a drug withdrawal syndrome in newborns called **neonatal abstinence syndrome**, or **neonatal opioid withdrawal syndrome** (NAS/NOWS), which causes **costly** hospital stays. A recent analysis showed that an estimated **32,000** babies were born with this syndrome in the United States in 2014, a more than **5-fold increase** since 2004.

EVERY ~ 15 MINUTES, A BABY IS BORN SUFFERING FROM OPIOID WITHDRAWAL.

NAS/NOWS and Maternal Opioid Use Disorder on the Rise
Rates per 1,000 Hospital Births



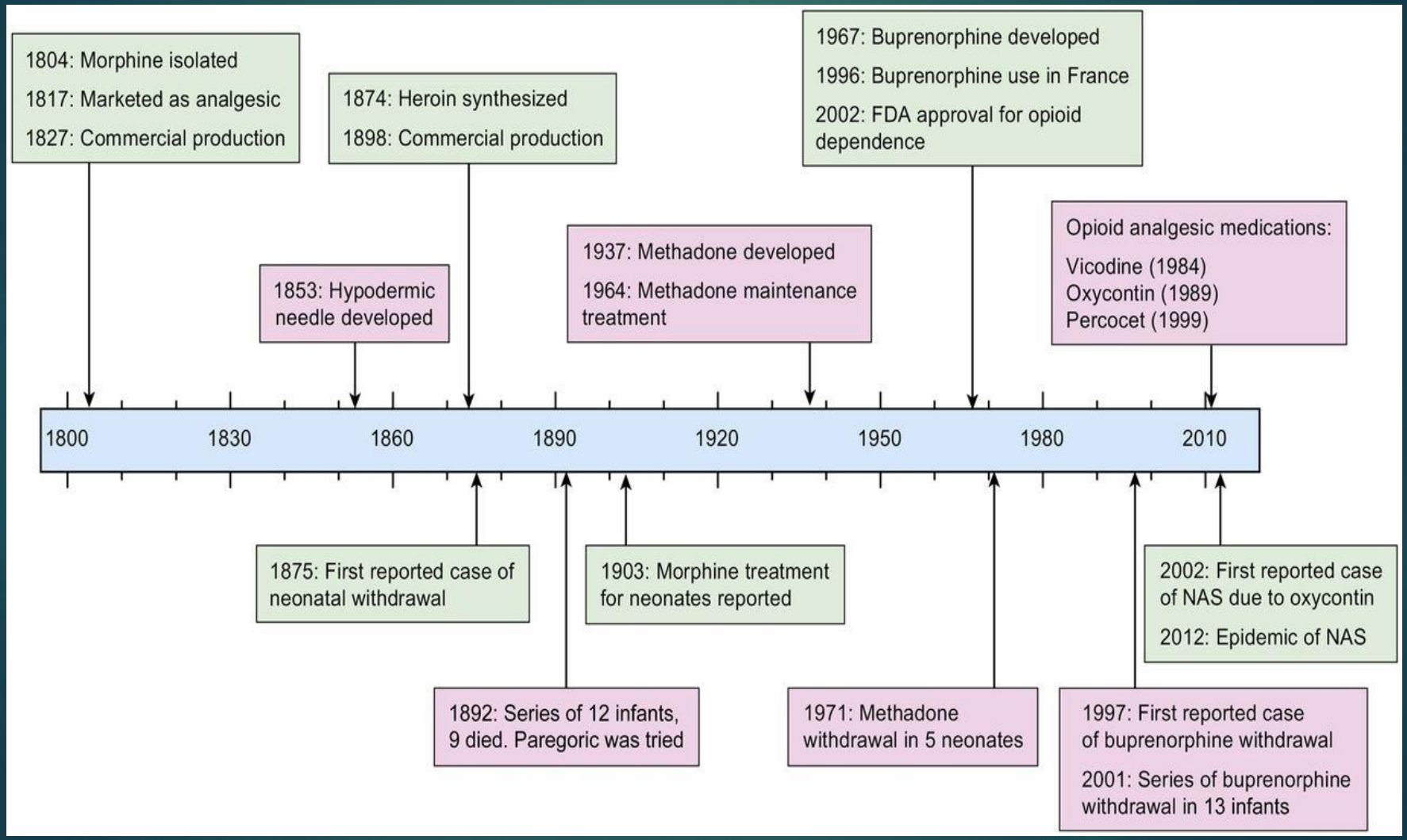
Growing Hospital Costs for Treatment of NAS/NOWS
Inflation-Adjusted U.S. Dollars (millions)

Honein et al. Pediatrics 2019, Winkelman et al. Pediatrics 2018, Haight et al. MMWR 2018.

NIH National Institute on Drug Abuse

DRUGABUSE.GOV

Historical Review



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The Elements of a Compassionate Approach and Treatment Options for Perinatal Opioid Use Disorder

Emily Rosenthal, MD

Laura Hart, MD

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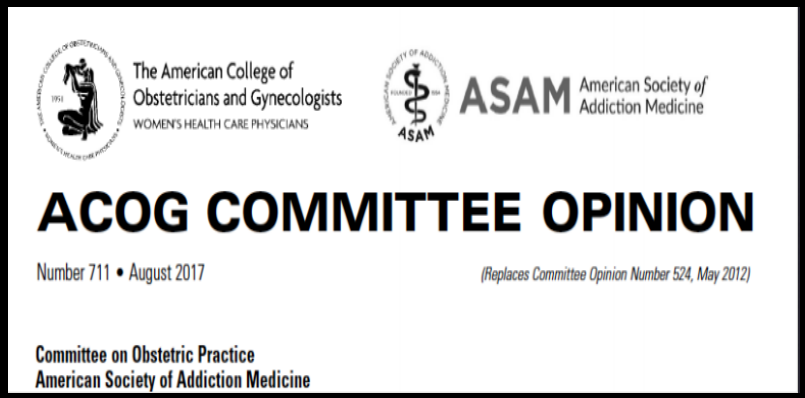
SCREENING



The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ASAM American Society of Addiction Medicine

ACOG COMMITTEE OPINION

Number 711 • August 2017

(Replaces Committee Opinion Number 524, May 2012)

Committee on Obstetric Practice
American Society of Addiction Medicine

Recommendations and Conclusions

The American College of Obstetricians and Gynecologists (ACOG) makes the following recommendations and conclusions:

- Early universal screening, brief intervention (such as engaging the patient in a short conversation, providing feedback and advice), and referral for treatment of pregnant women with opioid use and opioid use disorder improve maternal and infant outcomes.
- Screening for substance use should be part of comprehensive obstetric care and should be done at the first prenatal visit in partnership with the pregnant woman. Screening based only on factors, such as poor adherence to prenatal care or prior adverse pregnancy outcome, can lead to missed cases, and may add to stereotyping and stigma. Therefore, it is essential that screening be universal.
- Routine screening should rely on validated screening tools, such as questionnaires, including 4Ps, NIDA Quick Screen, and CRAFFT (for women 26 years or younger).
- For chronic pain, practice goals include strategies to avoid or minimize the use of opioids for pain management, highlighting alternative pain therapies such as nonpharmacologic (eg, exercise, physical therapy, behavioral approaches), and nonopioid pharmacologic treatments.

SCREENING

Special Report ajog.org

The role of screening, brief intervention, and referral to treatment in the perinatal period

Tricia E. Wright, MD, MS; Mishka Terplan, MD, MPH; Steven J. Ondersma, PhD; Cheryl Boyce, PhD; Kimberly Yonkers, MD; Grace Chang, MD, MPH; Andreea A. Creanga, MD PhD

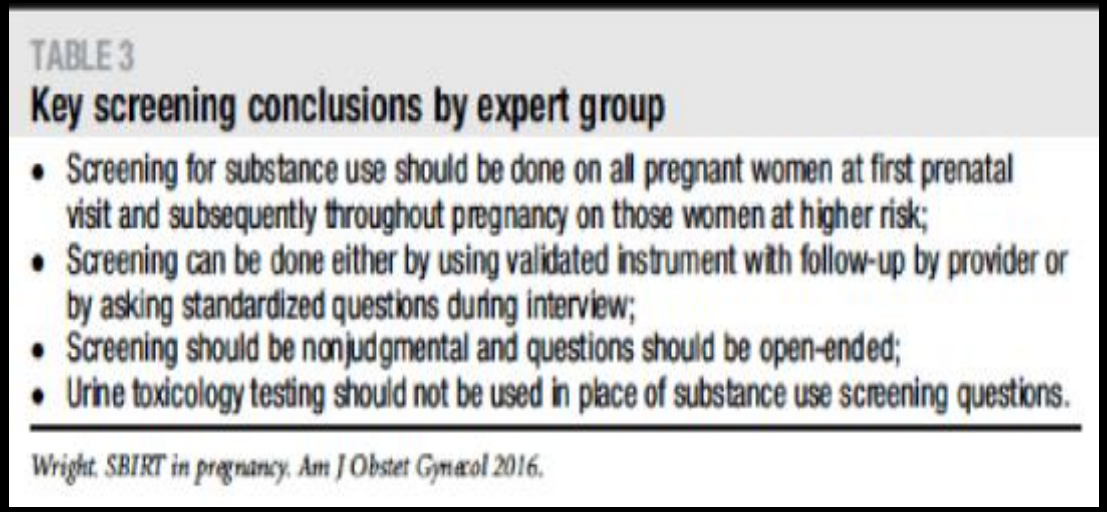


TABLE 3

Key screening conclusions by expert group

- Screening for substance use should be done on all pregnant women at first prenatal visit and subsequently throughout pregnancy on those women at higher risk;
- Screening can be done either by using validated instrument with follow-up by provider or by asking standardized questions during interview;
- Screening should be nonjudgmental and questions should be open-ended;
- Urine toxicology testing should not be used in place of substance use screening questions.

Wright. SBIRT in pregnancy. Am J Obstet Gynecol 2016.

SCREENING

Table 1. Components of screening, brief intervention, and referral to treatment

Component	Goal	Approach
Screening	Assess substance use and its severity	Patient-/computer-administered instrument or direct provider questions (Table 4)
Brief intervention	Increase intrinsic motivation to affect behavioral change (ie, reduce or abstain from use)	1–5 Patient-centered counseling sessions lasting <15 min using principles of motivational interviewing (Table 2)
Referral to treatment	Provide those identified as needing more treatment access to specialty care	Warm handoff to specialized treatment (eg, provider-to-provider telephone call), which requires practitioner familiarity with community resources and systems of care

Wright. SBIRT in pregnancy. Am J Obstet Gynecol 2016.

SCREENING

TABLE 2

Components of brief interview (modified[41])

Raise subject	• "Thank you for answering my questions—is it ok with you if we talk about your answers?" • "Can you tell me more about your past/current drinking or drug use? What does a typical week look like?"
Provide feedback	• "Sometimes patients who give similar answers are continuing to use drugs or alcohol during their pregnancy." • "I recommend all my pregnant patients not to use any alcohol or drugs, because of risk to you and to your baby."
Enhance motivation	• "What do you like and what are you concerned about when it comes to your substance use?" • "On a scale of 0–10, how ready are you to avoid drinking/using altogether? Why that number and not a ____ (lower number)?"
Negotiate plan	• Summarize conversation. Then: "What steps do you think you can take to reach your goal of having a healthy pregnancy and baby?" • "Can we schedule a date to check in about this next time?"

Wright. SBIRT in pregnancy. Am J Obstet Gynecol 2016.

SCREENING

Screening

- Screening: Asking about use of substances using a specific instrument or series of questions

Testing

- Testing: An assay of biologic materials (blood, urine) looking for a chemical signal indicative of substance use

SCREENING TOOLS

- NIDA – 56% sensitive, 95% specific
- WIDUS – 61% sensitive, 81% specific
- CRAFFT – 29% sensitive, 76% specific
- 4 Ps – 74% sensitive, 37% specific
- SURP-P – 80% sensitive, 33% specific

*No screening test available with BOTH good sensitivity and specificity

Blake-Lamb, 2018

5 P's for Substance Use

1. Did any of your *Parents* have problems with alcohol or drug use?
   ___ No ___Yes

2. Do any of your friends (*Peers*) have problems with alcohol or drug use?
   ___ No ___Yes

3. Does your *Partner* have a problem with alcohol or drug use?
   ___ No ___Yes

4. Before you were pregnant did you have problems with alcohol or drug use? (*Past*)
   ___ No ___Yes

5. In the past month, did you drink beer, wine or liquor, or use other drugs? (*Pregnancy*)
   ___ No ___Yes

SCREENING

- What do we need if we are going to screen?

- Link to care/treatment
  - Pharmacotherapy/MOUD
  - OB care
  - Behavioral Health

Options for OUD During Pregnancy

- Medically Supervised Withdrawal
- Medication for Opioid Use Disorder (MOUD)
  - Methadone
  - Buprenorphine (+/- naloxone)
  - Naltrexone

Medically Supervised Withdrawal

- Historically, not recommended due to ONE case report of stillbirth and the result of serial amniocentesis for catecholamines

- 2017 Systematic Review determined that the rates of fetal demise (miscarriage + IUFD) and preterm birth in pregnant women undergoing detoxification is not significantly different from that of comparison groups

- Relapse ranged from 0-100%

Terplan, 2018

Wouldn't it be best to get women off opiates during pregnancy?

Benefits of medication assisted recovery:

- Decrease risk of relapse
- Decreases transmission of hepatitis C, HIV, other infections
- Decreases activities associated w/ obtaining street drugs: theft, assault, sex-for-drugs, incarceration
- Facilitates return to normal activities: parenting, healthier partner relationships, employment, recreation, etc.
- Decreases risk of overdose death
- Increased utilization of prenatal care

MOUD = Standard of Care in Pregnancy

MOUD Medications

- Goals:
  - Alleviate signs/symptoms of physical withdrawal
  - Opioid receptor blockade
  - Diminish and alleviate drug craving
  - Normalize and stabilize perturbed brain neurochemistry.
- Options:

Opioid Antagonist: Naltrexone

Opioid Agonist: Full: Methadone

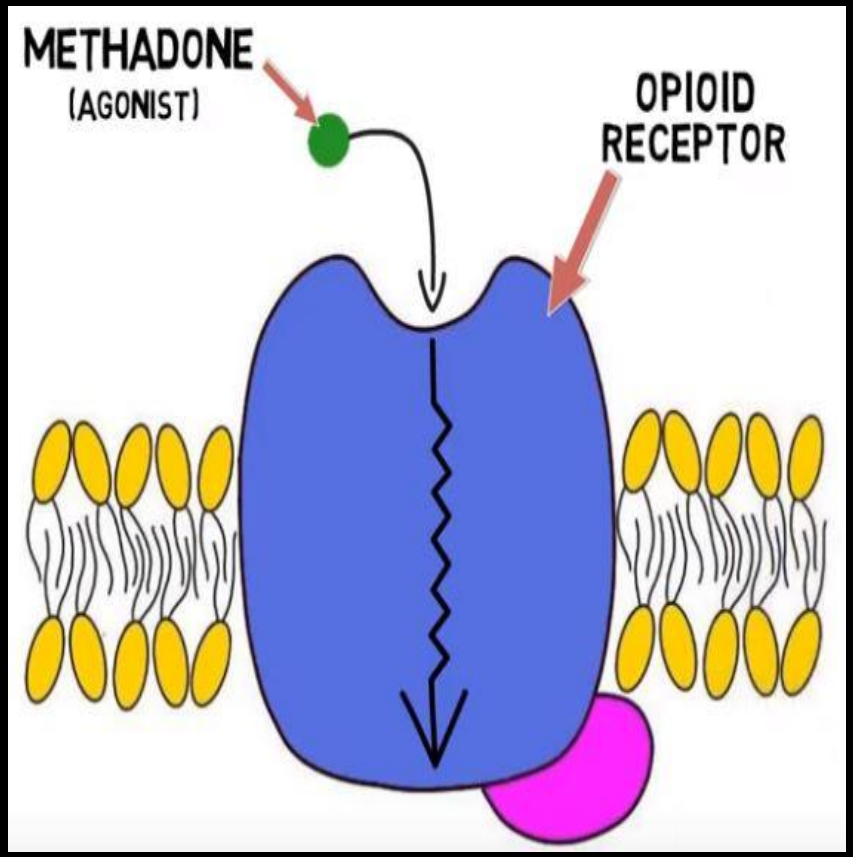
Partial: Buprenorphine +/-naloxone

METHADONE IN PREGNANCY

- Part of a multidisciplinary, coordinated approach to care
  - Medication – daily contact
  - Psychosocial support
  - Prenatal care

METHADONE IN PREGNANCY: PHARMACOLOGY

- Synthetic, long-acting opioid agonist at mu receptor
- Prevents withdrawal symptoms
- Reduces cravings
- Reduces euphoric effect of other opioids



METHADONE: PHARMACOKINETICS IN PREGNANCY

- Half life outside of pregnancy: ~ 24 hours
- Changes in pregnancy:
  - ↑ volume of distribution, renal clearance, changes in cytochrome P450 isoform activity
- Result: shorter half-life, increased dosage requirement over duration of pregnancy
  - Half life: highly variable – can be shortened to 12 hours, even 4-6 hours (Bogen 2013, McCarthy 2015)

METHADONE INITIATION

- Admit to inpatient
- Day #1: Start with 30mg. Give 10mg Q6H PRN COWS score > 10.
- Day #2: Start with total dose from previous day. Give 10mg Q6H PRN COWS score > 10
- Discharge when no further PRN doses are needed in 12-18 hours

Wesson & Ling, J Psychoactive Drugs. 2003 Apr-Jun;35(2):253-9.

COWS Clinical Opiate Withdrawal Scale

Resting Pulse Rate: _____ beats/minute *Measured after patient is sitting or lying for one minute* 0 Pulse rate 80 or below 1 Pulse rate 81-100 2 Pulse rate 101-120 4 Pulse rate greater than 120	GI Upset: *over last 1/2 hour* 0 No GI symptoms 1 Stomach cramps 2 Nausea or loose stool 3 Vomiting or diarrhea 5 Multiple episodes of diarrhea or vomiting
Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.* 0 No report of chills or flushing 1 Subjective report of chills or flushing 2 Flushed or observable moistness on face 3 Beads of sweat *on* brow or face 4 Sweat streaming off face	Tremor *observation of outstretched hands* 0 No tremor 1 Tremor can be felt, but not observed 2 Slight tremor observable 4 Gross tremor or muscle twitching
Restlessness *Observation during assessment* 0 Able to sit still 1 Reports difficulty sifting still, but is able to do so 3 Frequent shifting or extraneous movements of legs/arms 5 Unable to sit still for more than a few seconds	Yawning *Observation during assessment* 0 No yawning 1 Yawning once or twice during assessment 2 Yawning three or more times during assessment 4 Yawning several times/minute
Pupil size 0 Pupils pinned or normal size for room light 1 Pupils possibly larger than normal for room light 2 Pupils moderately dilated 5 Pupils so dilated that only the rim of the iris is visible	Anxiety or irritability 0 None 1 Patient reports increasing irritability or anxiousness 2 Patient obviously irritable anxious 4 Patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 Not present 1 Mild diffuse discomfort 2 Patient reports severe diffuse aching of joints/ muscles 4 Patient is rubbing joints or muscles and is unable to sit still because of discomfort	Gooseflesh skin 0 Skin is smooth 3 Piloerrection of skin can be felt or hairs standing up on arms 5 Prominent piloerrection
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 Not present 1 Nasal stuffiness or unusually moist eyes 2 Nose running or tearing 4 Nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing Assessment:_____

Score: 5-12 mild; 13-24 moderate; 25-36 moderately severe; more than 36 = severe withdrawal

OBSTETRIC MANAGEMENT DURING ADMISSION

- Prenatal labs
- STI screening
- HCV testing
- OB ultrasound
- NSTs
- Harm reduction counseling

METHADONE MAINTENANCE

- 10 mg increases in the outpatient setting by medical director of OTP
- May need readmission for more rapid dose increase as pregnancy progresses

SPLIT DOSING

- Given decreased half-life in pregnancy, split dosing may be preferable

- Determination of rapid metabolism:
  - Draw trough just prior to morning dose
  - Draw peak 3-4 hours after dose
  - Peak to trough ratio (PTR) > 2 → may benefit from split dosing

- Logistical barriers

POSTPARTUM CHANGES

- Highly variable need for dose adjustments
- Evidence does not support pre-specified dose decrease (Jones 2008, Pace 2014)
- Close postpartum monitoring for oversedation/overmedication is recommended

Buprenorphine

- Partial opioid agonist- ceiling effect
- Metabolized in liver by cytochrome P450 enzyme
- Formulations:
  - Sublingual forms (tablets and films):
    - Combo: buprenorphine/naloxone
    - Mono: buprenorphine only

Rationale for the Combination of Buprenorphine with Naloxone

- When used as prescribed (sublingual or buccal administration), there is minimal bioavailability of naloxone
- Compared to buprenorphine alone, the buprenorphine/naloxone combination if injected:
  - is more likely to precipitate withdrawal in persons physically dependent on opioids.
  - will prolong the onset of buprenorphine, and a primary driver of injection drug use is the speed in which a drug gets to the brain.
  - initially will produce less euphoria (similar to placebo) in those who are physically dependent on opioids
  - per prescription, is less likely to be diverted

Comer et al., 2010
Jones et al., 2015
Stoller et al., 2001
Mendelson et.al.,1997

Use of Buprenorphine With or Without Naloxone in the Pregnant Patient

- Buprenorphine mono-product has been the most well studied.
  - Concerns about naloxone fetal effect.
  - Concerns if injected it will not cause precipitated withdrawal.
- Buprenorphine/Naloxone – growing literature and recommendations
  - FDA designates sublingual naloxone:
    - No known teratogenic effects in animals
    - Controlled studies have not been conducted in humans
  - Evidence points to buprenorphine-naloxone safety in pregnancy, and it is frequently used.
    - Minimal naloxone absorption
    - Reducing injection drug use diversion.

Wiegand SL, et al., *Obstet Gynecol.* 2015, Debelak K, et al. *Am J Addict.* 2013
ASAM Updated OBOT Guidelines 2019, Lund et al., 2013

Major Features of Buprenorphine

Partial agonist at mu receptor

- Comparatively less respiratory suppression than full agonists and *unlikely by itself* to lead to fatal respiratory arrest even at high doses
- Schedule III

Long acting

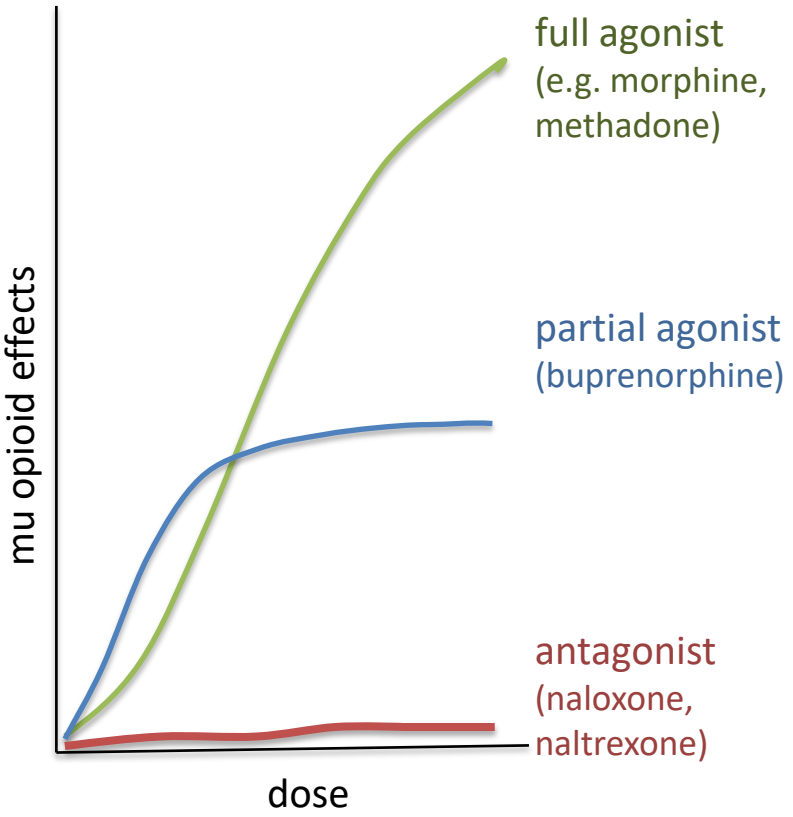
- Half-life ~ 24-36 Hours

High affinity for mu receptor

- *Blocks* other opioids
- *Displaces* other opioids
  - Can precipitate withdrawal

Slow dissociation from mu receptor

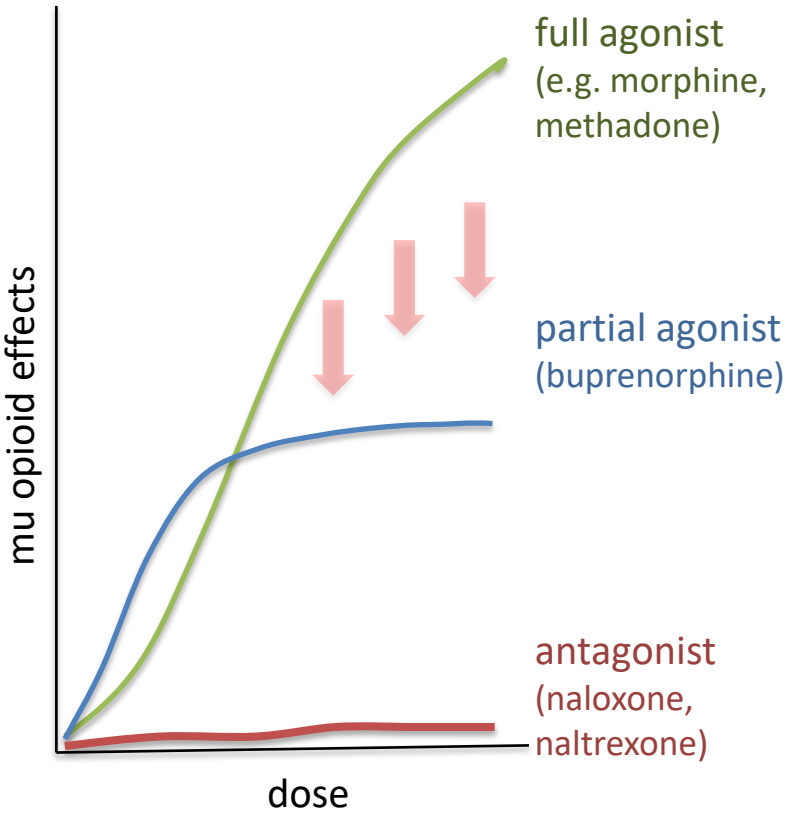
- *Stays on receptor for a long time*



SAMHSA, 2018
Orman & Keating, 2009

Precipitated Withdrawal

- Because of its high affinity for mu opioid receptors, buprenorphine can displace other agonists (such as heroin, methadone) that are already present
- The sudden drop from full-agonist to partial-agonist stimulation of opioid receptors can cause sudden withdrawal symptoms, a condition known as ***precipitated withdrawal***



SAMHSA, 2018
Orman & Keating, 2009

How Does Buprenorphine Work for OUDs?

- High affinity for, and slow dissociation from the mu receptor leads to:
  - Prevention of withdrawal symptoms
  - Decreased cravings
  - Decreased effects of other opioids

- However, it is unlikely to block *all* effects from an opioid taken after initiation of buprenorphine treatment:
  - Because binding to mu receptors is a dynamic process; while effects may be less, they are not likely to be completely eliminated.

Common Adverse Effects of Buprenorphine

- Headaches
  - Management: aspirin, ibuprofen, acetaminophen (if there are no contra-indications)
- Nausea
  - Management: Consider spitting the saliva out after adequate absorption instead of swallowing.
- Constipation
  - Management: Stay well-hydrated, Consume high-fiber diet, Consider stool softeners, laxatives, naloxegol
- Xerostomia (Dry mouth) – side effect of ALL opioids
  - Complications: Gingivitis, Periodontitis
  - Management: Stay well-hydrated, Maintain good oral hygiene

SAMHSA, 2018
Wald, 2016

Buprenorphine Treatment in Pregnancy

- Initiation should begin when a woman shows objective, observable signs of withdrawal, but before severe withdrawal symptoms are evidenced.
  - >23 weeks gestation should have in-clinic observation for close monitoring during initiation of treatment with buprenorphine. Hospitalization may be advisable due to the potential for adverse events.
- Buprenorphine dosing is the same as in nonpregnant women.
  - Dosage is not linked to increased incidence of NOWS
- During pregnancy: No significant dose increases needed though may require split dosing in 3rd trimester
- Postpartum: Continue current dose of buprenorphine.
  - Return to the combination product if patient was converted to the mono product during pregnancy. No dosage changes.

Jones H, et.al, 2013; Jones et al., 2014; Lund et al., 2013).

Buprenorphine Induction

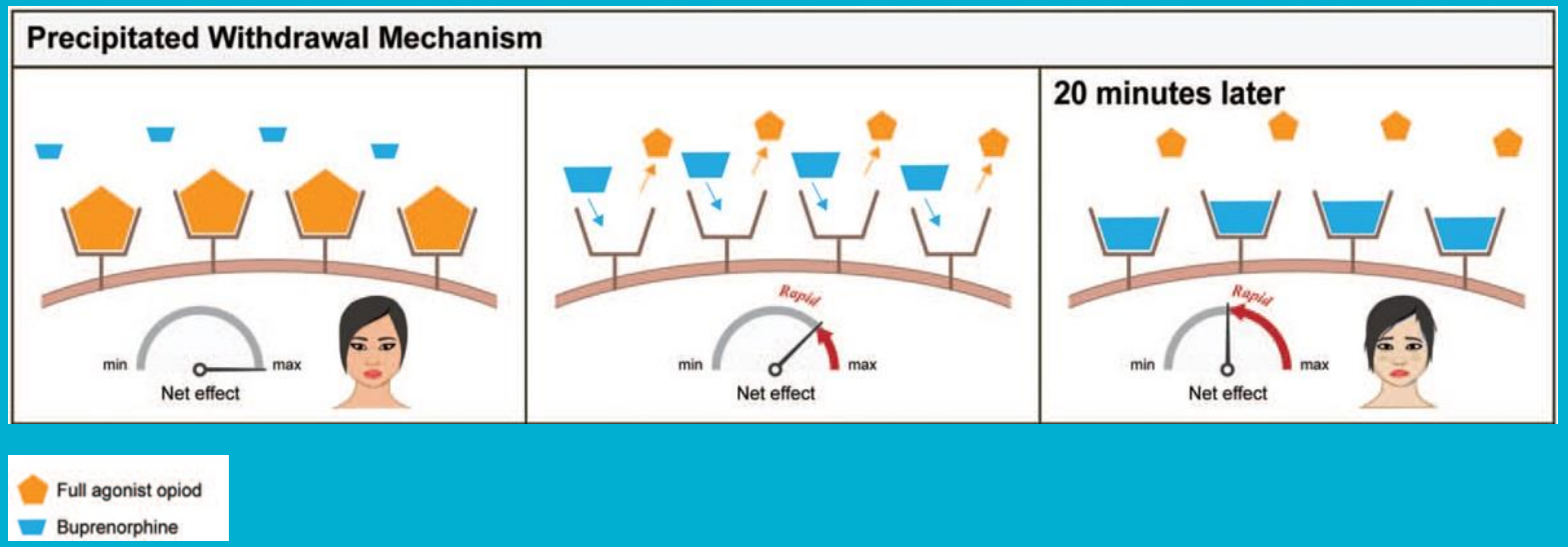
Day 1

- Abstinent 12-24 hours short acting opioids, 36-72 hours long acting
- Moderate withdrawal (COWS >10)
- 4mg buprenorphine Q2-4 hrs until opioid symptoms are controlled
  - Typical max 16 mg

After day 1

- 8-16 mg total daily dose given Qday or BID
  - 8 mg Qday, 8 mg BID, 4 mg BID

Withdrawal or Precipitated Withdrawal



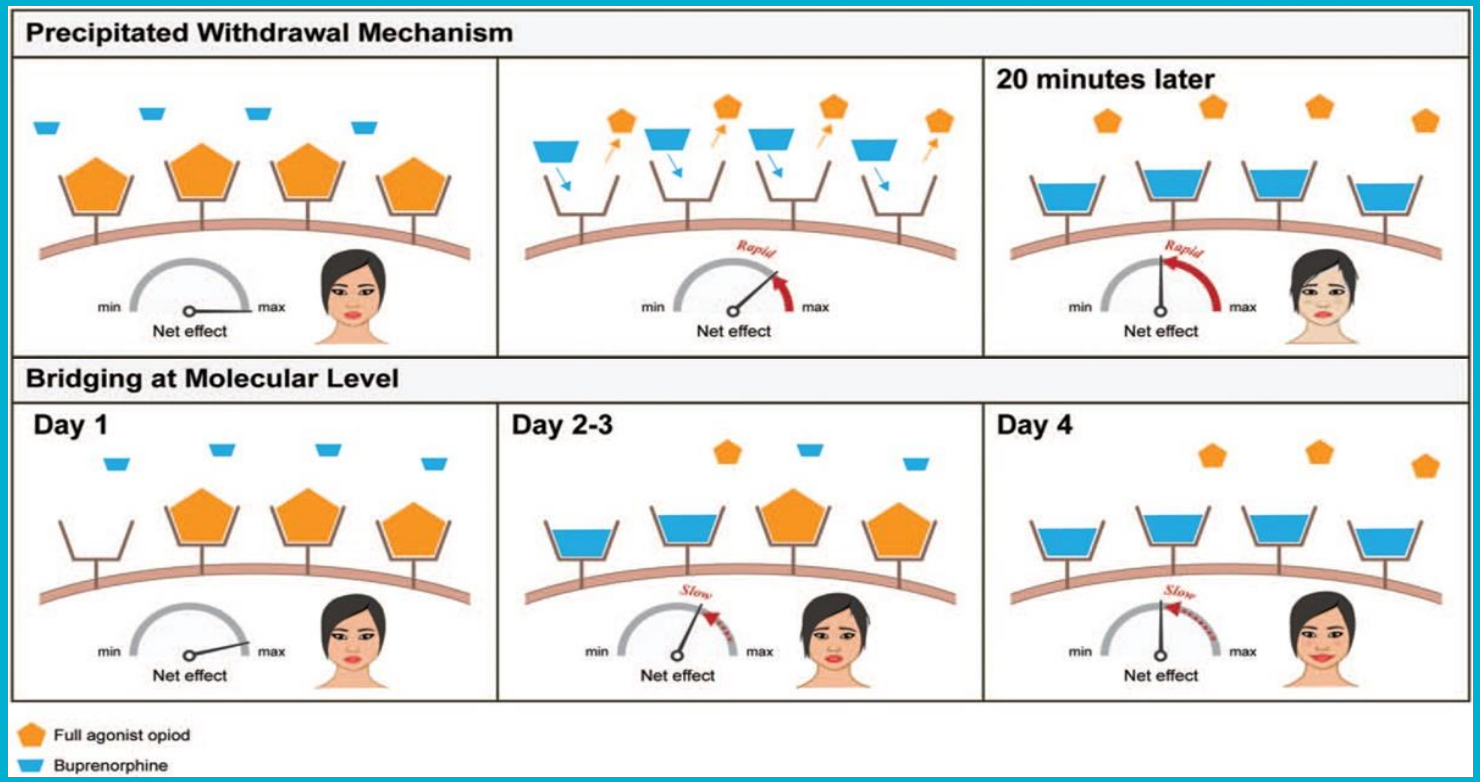
Ghosh SM, et al. A Review of Novel Methods To Support The Transition From Methadone and Other Full Agonist Opioids To Buprenorphine/Naloxone Sublingual In Both Community and Acute Care Settings. Canadian Journal of Addiction. Dec 2019, 10(4):41-50.

Microdosing

Why microdosing

- No abstinence period == no mild-moderate w/d sx before initiation
- Decrease risk precipitated withdrawal
- Decrease withdrawl & craving ssymptoms throughout titration
- Increased retention!!

How Microdosing Works



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Buprenorphine and Other Opioids

Buprenorphine followed by an agonist	Buprenorphine remains on the receptor and effect of agonist is decreased
Agonist followed by buprenorphine	Buprenorphine displaces full agonist Can precipitate withdrawal
Buprenorphine followed by antagonist	• Buprenorphine affinity will challenge the antagonist and stay on the receptor • Given together antagonists will result in a slower onset of buprenorphine • Naltrexone will over time precipitate withdrawal

CSAT, 2004
SAMHSA, 2016, 2016

Buprenorphine vs. Methadone in Pregnant Patients with OUD

- Consider Availability, Patient Preference
- Advantages:

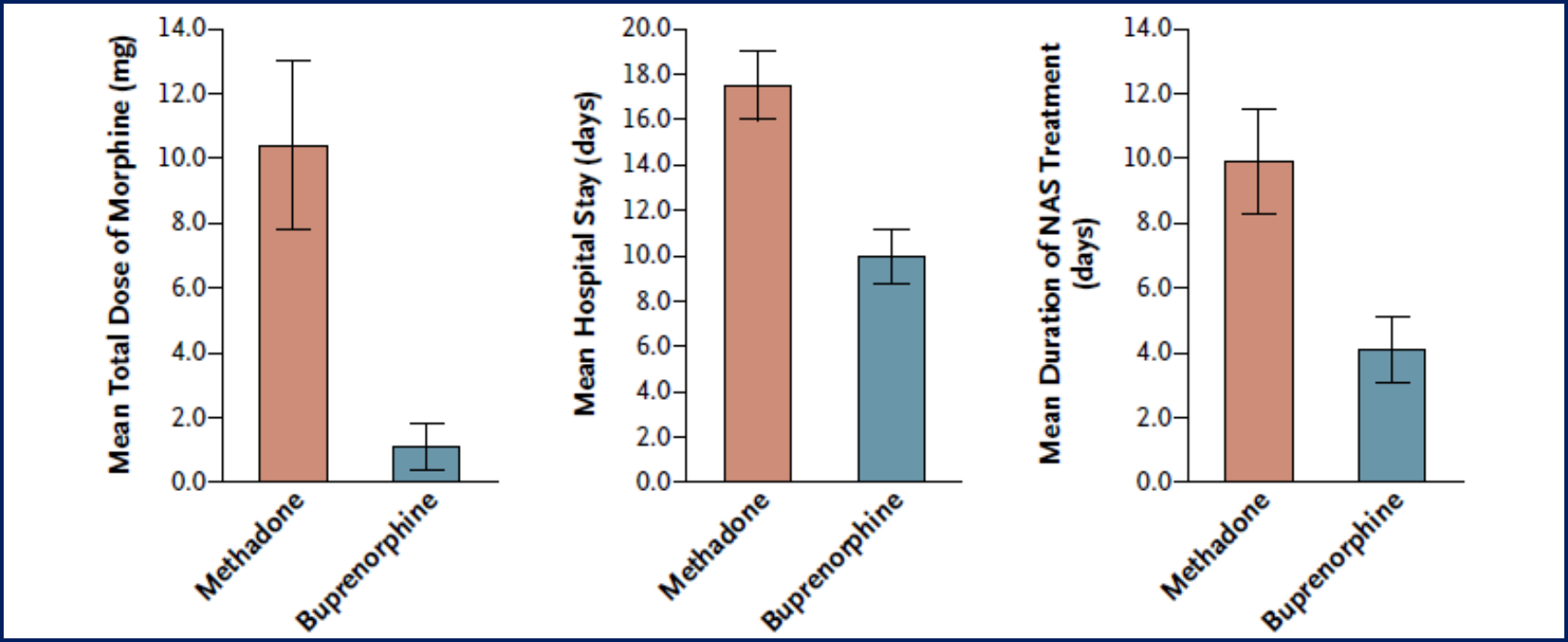
Buprenorphine (Mono or Combination Products)	Methadone
Office based treatment Similar efficacy as methadone Lower overdose potential Less medication interactions Less severe NOWS than methadone	More structure setting for care. OTP Less potential for diversion More long-term outcome data available

Fischer et al., 1998, 1999
Jones et al., 2010;
Kakko et al., 2008;
Kraft et al., 2017
ASAM Updated Guidelines 2020

Maternal Opioid Treatment:

Human Experimental Research (MOTHER) Study

- Buprenorphine vs Methadone effect on NOWS
  - One tenth the amount of morphine needed to control symptoms
  - Nearly one half the time spent in the hospital
  - More than a third reduction in duration of treatment



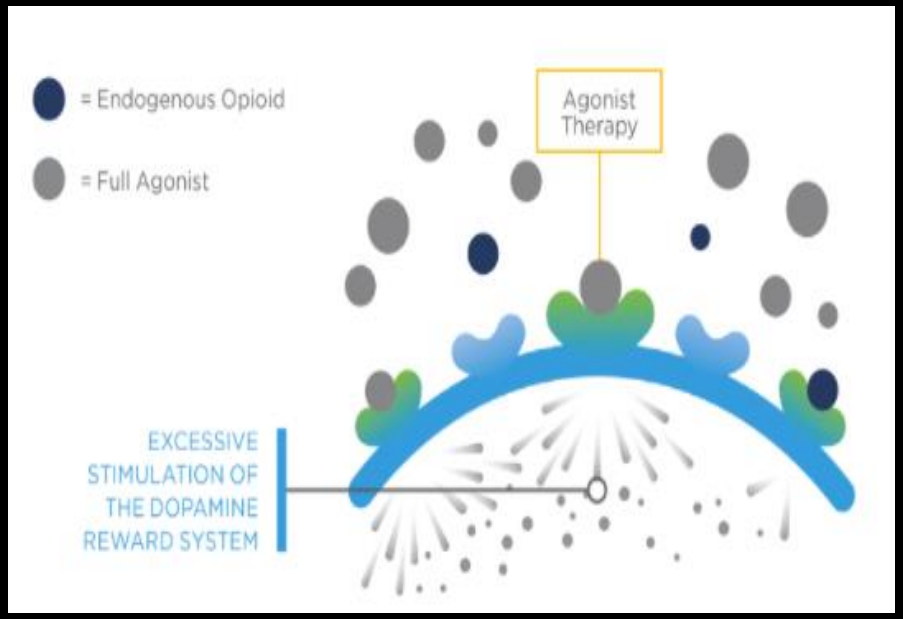
Jones et al., 2010

Take Home Message: Which MOUD?

- Methadone or buprenorphine may be used during pregnancy
- Which medication depends on many factors:
  - Need for care coordination, maternal stability, etc
- Switching from methadone to buprenorphine during pregnancy is difficult

NALTREXONE

- Opioid antagonist
- Blocks euphoric effects of opioid agonists
- Available in short acting oral form, and long acting implantable and injectable forms (Vivitrol)
- Preclinical data: early fetal loss in rats and rabbits treated with doses exceeding human therapeutic doses



NALTREXONE IN PREGNANCY

- 25+ published cases of exposure in pregnancy to implant, all with normal birth outcomes (Jones, 2012)

- Outcomes of 17 cases (Hulse, 2003):
  - Mean gestational age 38 weeks (same as for methadone)
  - Mean birthweight 3037 grams (vs. methadone 2888 grams)
  - Significantly fewer infants born < 37 wks or <2500 grams compared to methadone cohort

NALTREXONE IN PREGNANCY

- Small retrospective cohort study showed decreased incidence of NOWS, and decreased duration of neonatal hospital stay as compared to buprenorphine (Wachman, 2019)

- Prospective cohort study of naltrexone vs. methadone/buprenorphine (Towers, 2020):
  - Decreased incidence of NOWS
  - No difference n the incidence of anomalies
  - No cases of early pregnancy loss or fetal demise in either group

Inpatient Management of Opioid Withdrawal

- Goals of management of opioid withdrawal as secondary diagnosis
  - Maximize ability to complete course of inpatient medical/surgical treatment by managing withdrawal symptoms
  - Start and/or stabilize on medication assisted therapy (MAT)
  - Transition to outpatient to improve outcomes and reduce re-admissions
    - MAT, counseling, follow-up care, social needs
- Treatment of opioid withdrawal
  - Opioid replacement - Morphine, oxycodone, methadone, buprenorphine
  - Adjunctive medications
    - Clonidine
    - Loperamide
    - Benzodiazepines
    - Antihistamines
    - Ondansetron
    - NSAIDs, acetaminophen
    - Gabapentin

Management of Inpatient Opioid Withdrawal

Opioid Agonist:

Full: Methadone

Opioids

Partial: Buprenorphine

Adjunctive medications

Clonidine

Loperamide

Benzodiazepines

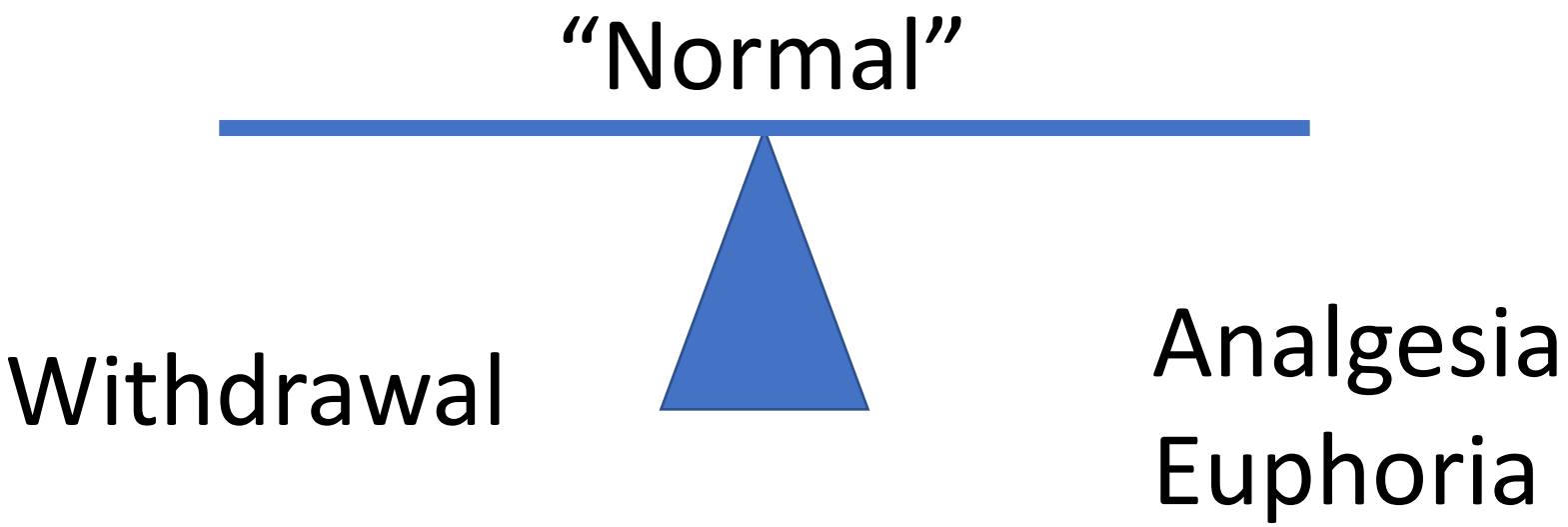
Antihistamines

Ondansetron

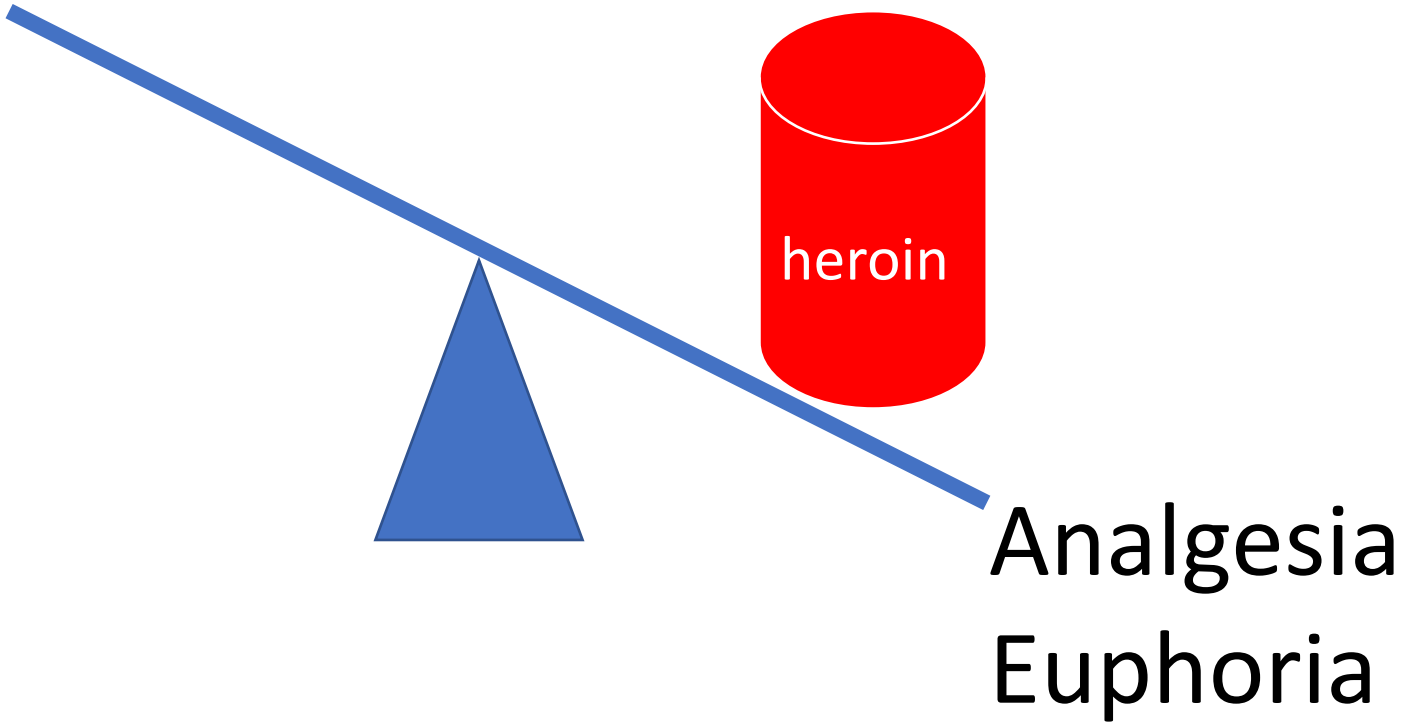
NSAIDs, acetaminophen

Gabapentin

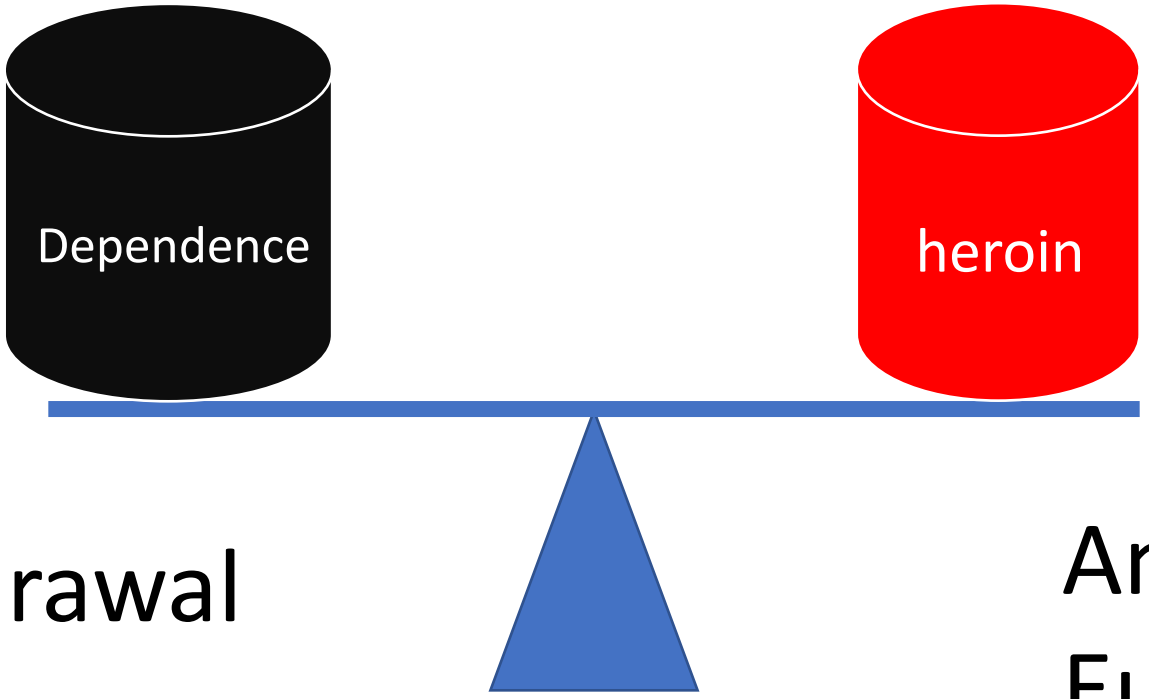
Opioid Naïve



Opioid Naïve



Opioid Dependence

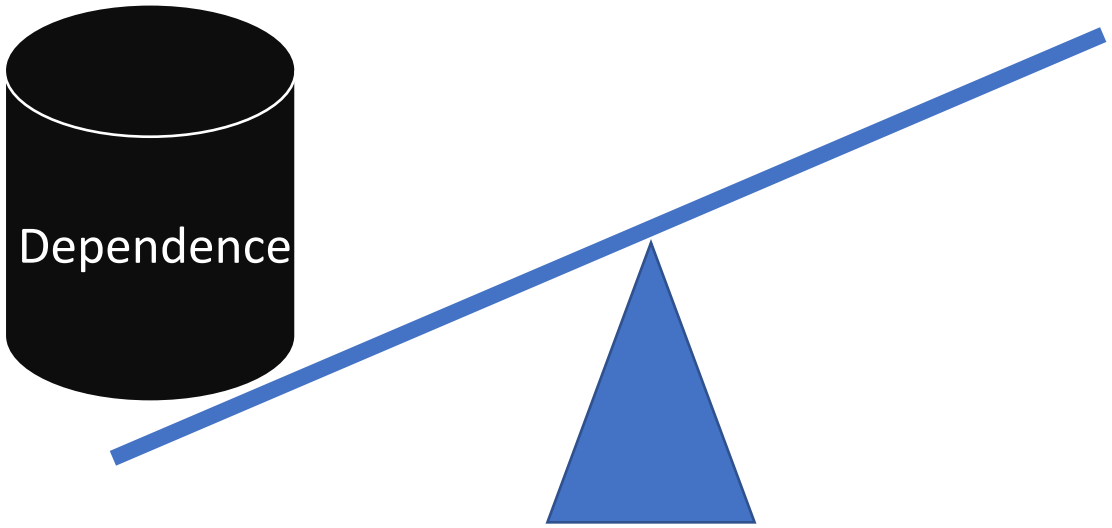


Withdrawal

Analgesia
Euphoria

“Normal”

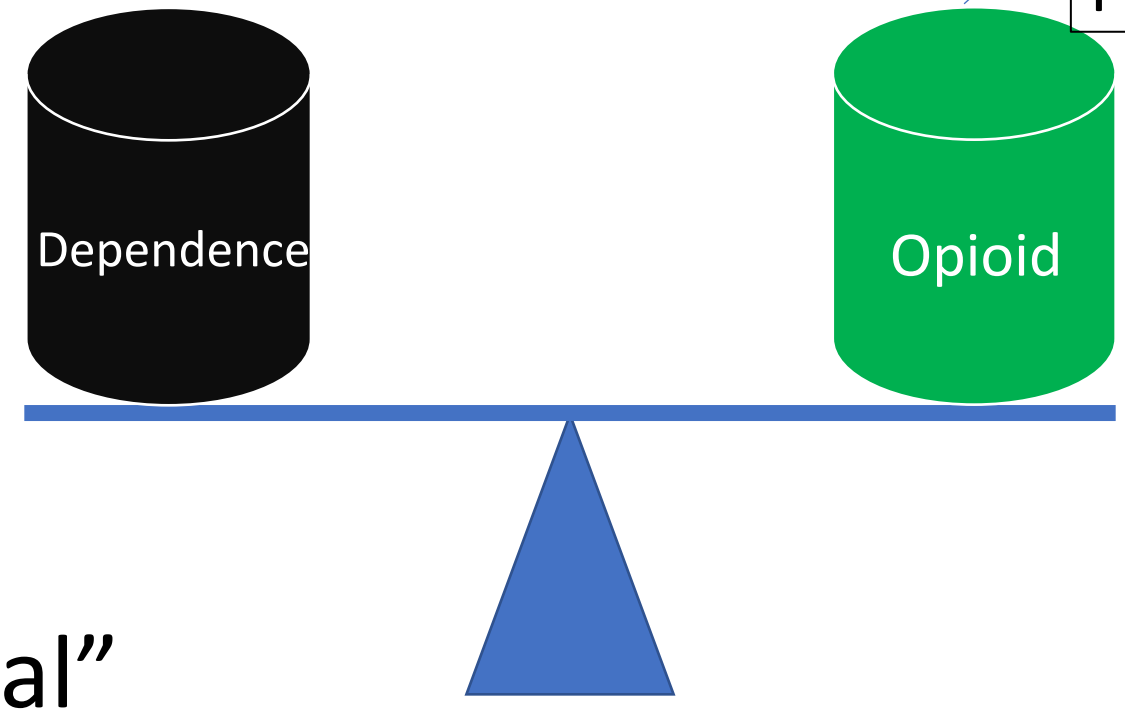
Opioid Withdrawal



Withdrawal

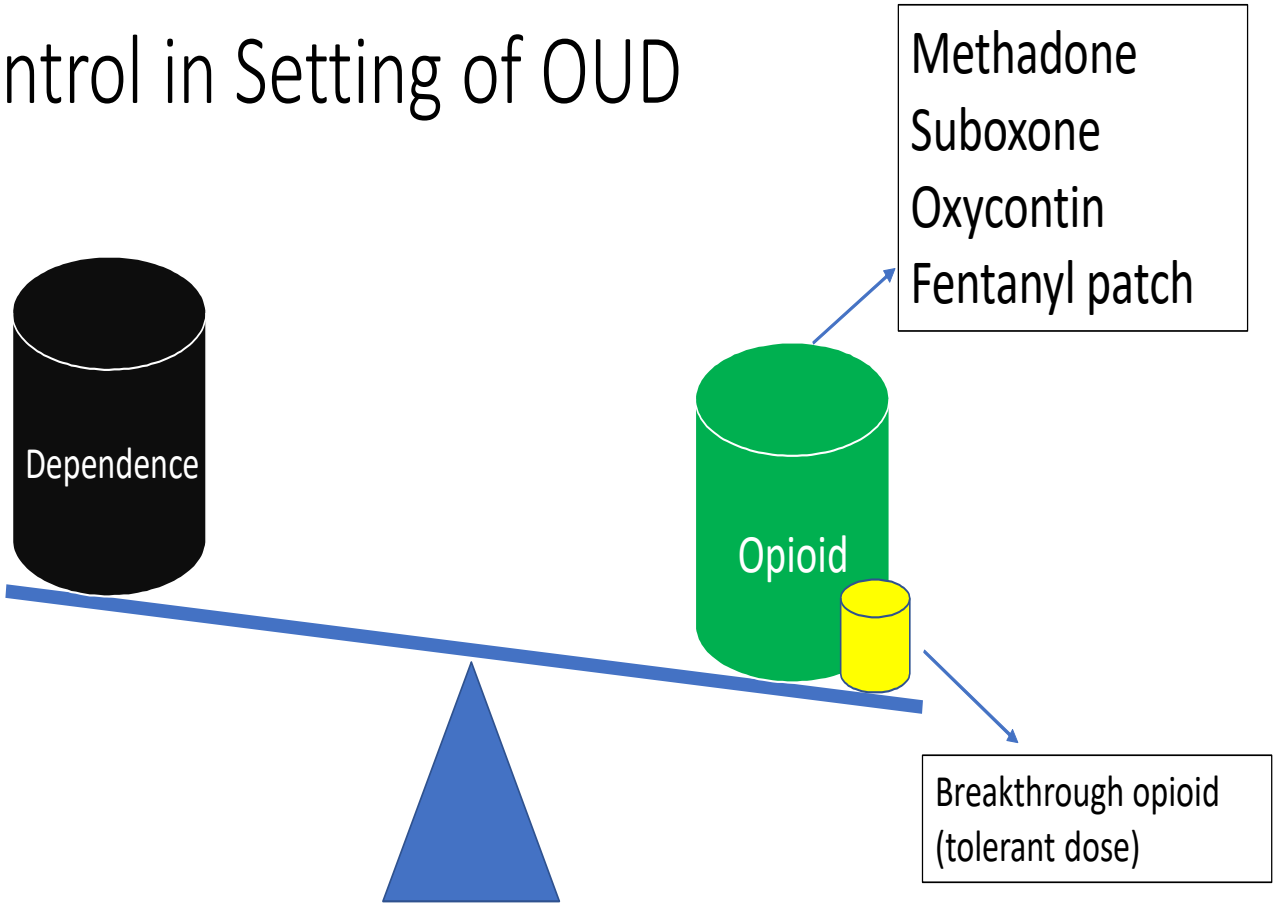
Opioid Replacement

Methadone
Suboxone
Oxycontin
Fentanyl
patch



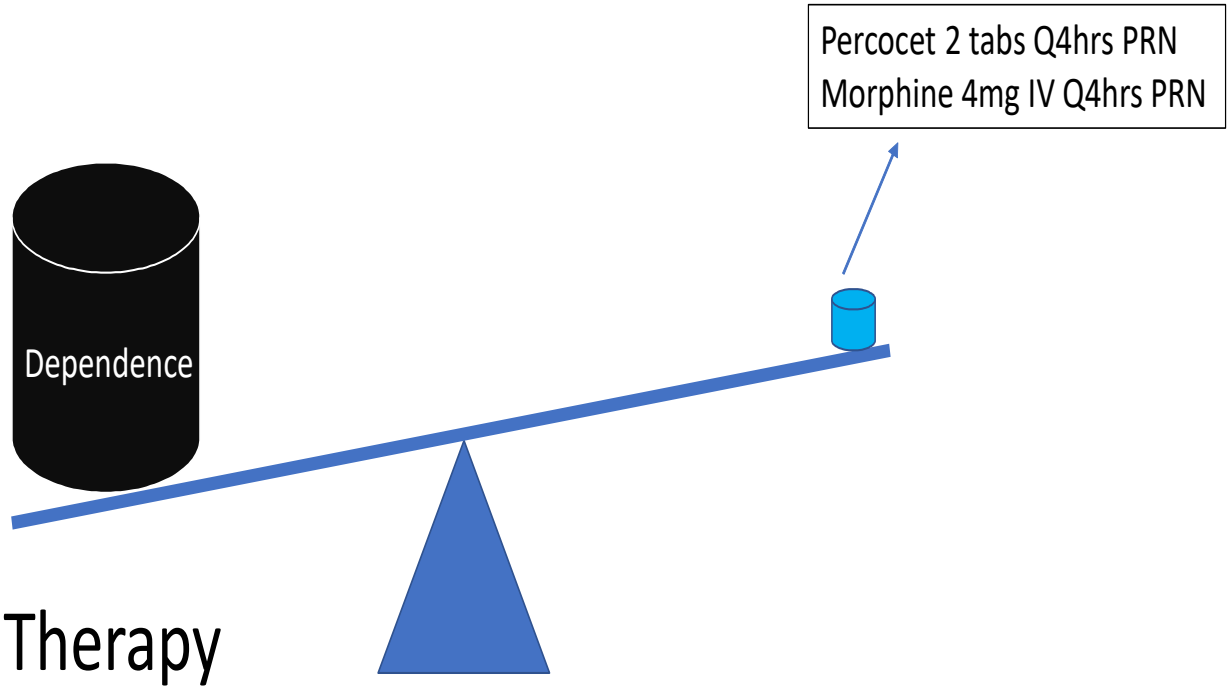
"Normal"
No analgesic effect

Pain Control in Setting of OUD



Analgesia

Inadequate Withdrawal Management and Pain Control



Common Therapy Inadequate

Sample Withdraw Management

- 1 Bundle of heroin a day:
  - Oxycontin 60 mg Q8 (to meet dependence)
  - Oxycodone 30 mg q4 prn- mod pain
  - Hydromorphone 1-2 mg Q2-3 hr prn severe pain
- Adjunctive meds:
  - Loperamide
  - Odansteron
  - Hydroxyzine
  - NSAIDS/acetaminophen/gabapentin
  - Benzodiazepine

Xylazine: Withdrawal

- Not a well-defined syndrome
- Overlap with opioid withdrawal syndrome
  - Anxiety, irritability, restless
- No data or data-based recommendations available for treatment
- Typical treatment for sedative-hypnotic withdrawal
  - Benzodiazepines are first line agents
  - Gabapentin, clonidine adjunctive therapies

PATIENT VOICES: PAIN MANAGEMENT

Like I was in serious [expletive] pain. They're like scale from 1 to 10, and I'm like 15. Hello!? So this [expletive] decides she's gonna give me fentanyl- like 0.1 milligrams of fentanyl when I'm on 160 milligrams of methadone. Like hello?! So I'm like, "It's not gonna work. It's not gonna work." So she's like, "I can give it to you every 5 minutes." I'm like, "It's not gonna work." **(Participant 8)**

I am in labor and you people are telling me there's nothing you can do for the pain cause I shouldn't be in that much pain cause I'm not dilating and I'm not in active labor. Well I'm telling you I'm in [expletive] pain and you are doing nothing. Okay so yes now I'm pissed off. **(Participant 5)**

They couldn't give me anything [because I am a Suboxone patient], so they told me my best bet was an epidural and I told them I didn't want it, but then the pain got so bad that I couldn't bear it anymore. I told them, "Go ahead and just give

O'Rourke-Suchoff, 2

PAIN MANAGEMENT

- Patients with OUD are at risk for undertreatment of intrapartum and postpartum pain (Mitra, 2004)
  - High opioid tolerance
  - Opioid-induced hyperalgesia
  - Trauma

INTRAPARTUM PAIN MANAGEMENT

- Continue MOUD
- Neuraxial anesthesia is highly effective (Hoflich, 2012)
- Avoid nalbuphine, butorphanol
- Inhaled nitrous oxide less effective in patients with OUD and may increase sedation (Wright, 2018)

PAIN MANAGEMENT: VAGINAL DELIVERY

- Multimodal approach
- Avoid routine use of opioids
- If they are needed, full agonist opioid is safe to use in conjunction with buprenorphine

PAIN MANAGEMENT: CESAREAN DELIVERY

- Neuraxial anesthesia is preferred over general
- Use of postoperative neuraxial opioids may not be as effective as for an opioid naïve patient
- Use of transversus abdominis plane (TAP) blocks: not studied, potentially effective
- Post-operative ketorolac, acetaminophen, ibuprofen
- Continue MOUD
- Supplemental short-acting opioids PRN

PAIN MANAGEMENT: DIFFICULT CASES

- Ketamine: 10mg intraoperatively (Bauchat, 2011)
- Gabapentin: 600mg preoperatively (Felder, 2019)

- Consult the acute pain service:
  - Post-operative gabapentin
  - Post-operative ketamine
  - Extended epidural use

PATIENT VOICES: LABOR AND BIRTH EXPERIENCE

I don't wanna feel like I come here for refuge and for help and I feel like you people don't even care. It's your job, it's what's you are supposed to do. Just like those little things just take in and respect for the situation and be mindful about what these girls are going through because some people say, oh you did it for yourself. No, no woman did this to themselves. **(Participant 2)**

It's like they wanted to find something wrong with the baby. They wanted to find that he was withdrawing or you know what I mean and I'm like there's nothing wrong with him. **(Participant 5)**

My first experience with the first nurse, I didn't feel very comfortable at all. I could tell that she was very judgmental, kind of ---I felt she was looking at me like I was a junkie. **(Participant 4)**

IMMEDIATE POSTPARTUM CARE

- Compassionate, nonjudgmental care
- Support for mother as primary caregiver of the infant
- Contraception
  - Within reproductive justice framework
  - Immediate postpartum LARC
- Support for breastfeeding
  - PRENATAL breastfeeding education is associated with increased uptake (Schiff, 2018)
- Harm reduction counseling
- Ensure comprehensive transition of care/hand-off

PATIENT VOICES: INVOLVEMENT OF DHS/DCF/CPS

You know like, more if I said or did the wrong things that my freedom would be taken away in a way, or social security would be at the door. You know, just by saying you know…just by somebody else's judgment of me could change my entire future. That's what I felt. **(Participant 4)**

They kept bringing up social work and like DCF [child protective services] and it's like dude let me have my baby and not worry. Getting me worried and stuff and that's like not okay to me **(Participant 5)**

A social worker came. The social worker, I guess, for DCF [child protective services] has to come because of the fact that I am on Subutex. But after everything was all set, they ended up leaving and what else? … That was basically it. **(Participant 1)**

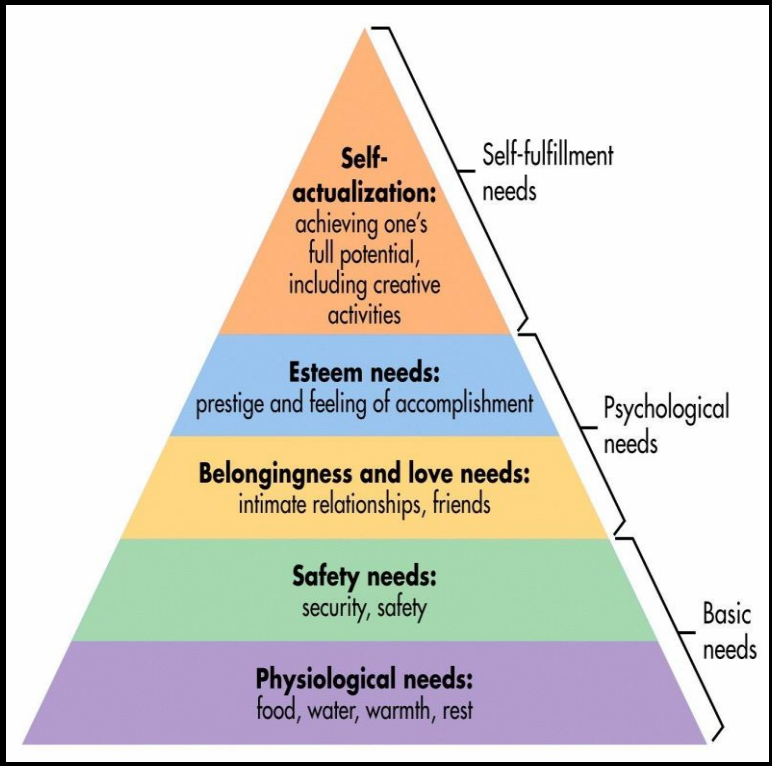
O'Rourke-Suchoff, 20

CONTINUING POSTPARTUM CARE

- Risk of overdose is highest at 7-12 months postpartum (Schiff, 2018)
- It is critical that a patient's care not end with delivery or the postpartum visit
- If unable to provide continuity care, establish referral relationship
  - Dyadic care
- Peer support specialists are helpful (Fallin-Bennett, 2020)

CONTINUING CARE FOR THE DYAD

- Longer NICU stays associated with decreased breastfeeding in patients with OUD (Schiff, 2018)
- Mindfulness-Based Parenting: 2 hours a week, for 12 weeks -> significant improvement on measures of quality of parenting (both self-report and structured observation) (Gannon, 2017)
- Childcare during treatment
- Legal aid, housing assistance, food security



Maslow's Hierarchy of Needs

IMPORTANT POINTS

- Screening for substance use in pregnant women should be universal
- Screening only those with risk factors can lead to missed cases, stereotyping, and stigma
- Screening can be done with a validated instrument or through standardized interview questions
- Urine drug screens should not be used in place of substance use screening questions
- Treatment with medication for opioid use disorder is the standard of care in pregnancy

IMPORTANT POINTS

- MOUD reduces the risk of maternal relapse
- Options for treatment are Methadone and Buprenorphine (and possibly Naltrexone)
- Narcan (naloxone)should be provided/prescribed for all who are being treated for OUD
- Women with OUD may have higher pain management needs
- MOUD should be continued during labor and delivery
- Risk of overdose is highest at 7-12 months postpartum

Upcoming Trainings

Online, free of charge, continuing education credits

December 10th
Care & Treatment of Families Impacted by OUD, Part 2 8:30 am - 12:30 pm
https://www.eventbrite.com/e/care-and-treatment-of-families-impacted-by-opioid-use-disorder-part-2-tickets-205693784647

Content to include:

- Breastfeeding Infants Exposed to Opioids: Recommendations, Realities, and Future Perspectives
- Anticipatory guidance for Caretakers: What to expect when you're expecting a baby with Neonatal Abstinence Syndrome
- Doula Support for Opioid-Affected Infants and Families: A Trauma-Informed Approach
- Community Legal Services and Family Advocacy: Know Your Rights and How to Advocate for the Families You Serve

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Upcoming Trainings

Cultivating Safety Within the Patient-Provider Relationship - 3 part series

The Impact of "The 8 Big Identities" on the Treatment of Patients who have Substance Use Disorder

Dec. 14, 1-3pm
Presenter: Rebecca Bryan, DNP, AGPCNP, APN, Director of Community Engagement & Professional Development, Rutgers University School of Nursing-Camden

Incorporating Trauma-Informed Approaches in Substance Use Screenings

Jan. 11, 2022, 1-3 pm
Presenter: Silvana Mazzella, BSW, MA, Assistant Executive Director, Prevention Point Philadelphia

REGISTRATION LINK and additional information for the series:
https://www.eventbrite.com/e/cultivating-safety-within-the-patient-provider-relationship-3-part-series-tickets-170354031494

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Perinatal OUD Learning Collaboratives

Tuesday, November 30, 2021 8:30 am
https://www.eventbrite.com/e/perinatal-opioid-use-learning-collaborative-consult-with-laura-hart-md-tickets-206015276237

Wednesday, December 29, 2021, 8:30 am
https://www.eventbrite.com/e/perinatal-opioid-use-learning-collaborative-consult-with-laura-hart-md-tickets-206018515927

- 8:30 – 9:30 am
- With Laura Hart, MD
  - ❑ Informal sharing of cases
  - ❑ Expert consultation
  - ❑ Collaborative discussion

Kaitlin Worden, MSW, LSW, Bereavement Care Provider with PDPH, Division of Substance Use Prevention and Harm Reduction, has provided info on a monthly online "supportive space to process grief for people working in the substance use field in Philadelphia," including anyone who does outreach, and including people who use drugs.

To learn more, visit www.phila.gov/griefsupport

Care for Newborns with NAS in the NICU and after Discharge

Collaborative Approach

In perinatal/postnatal phase:

- Mothers will be advised by OB/MFM
- Mothers will be educated about OUD and NAS
- Arrange a meeting with Neonatologist to discuss NAS
- Non-judgmental approach to mothers respecting her confidentiality
- Embracing mom-baby dyad with love and compassion
- Holistic approach focusing on promoting mother infant bond
- Promoting and supporting breastfeeding, kangaroo care
- Involvement of Social workers and counselors as indicated

Current Treatment Approach to NAS

- Mothers are screened by OB for substance abuse
- NICU/Pediatric team informed by OB about positive screen for opioids
- Infants admitted to WBN will be scored using the Finnegan NAS scoring system for 5 days
- Breastfeeding encouraged if no concerning maternal illicit substance use or infectious contraindications
- If NAS scores >8 x 3 or >12 x2 infant will be admitted to NICU
- Treatment is a combination of non-pharmacological and pharmacological approach (Morphine 0.4mg/kg/d)
- Multidisciplinary approach with NICU team and Social work for "safe" discharge planning

Pathophysiology of NAS

- Pathophysiology not completely understood
- Genetic variations of the mu-opioid receptor (OPRM1) and the catechol-o-methyltransferase (COMT) genes appear to affect the need for pharmacotherapy and length of stay in neonates with prenatal opioid exposure
- Epigenetic modifications to the mu-opioid receptor (OPRM1) promoter have also been associated with NAS severity

Diagnosis & Tests

- Physical examination
- Toxicology screen of urine (used at Temple hospital), meconium, hair, placenta, cord blood
- Prenatal screening & assessment

Drawbacks Urine toxicology:

- results reflect recent exposure, dependent on drug half life
- Some medications can cross-react with immunoassay and cause false positive test result

What is Neonatal Abstinence Syndrome (NAS)?

Drug withdrawal syndrome that occurs primarily among

opioid-exposed infants shortly after birth

Withdrawal symptoms most commonly occur 48–72 hours after birth

- Tremors, hyperactive reflexes, seizures
- Excessive or high-pitched crying, irritability,

yawning, stuffy nose, sneezing, sleep disturbances

- Poor feeding and sucking, vomiting, loose stools,

dehydration, poor weight gain, need for gavage feeds

- Increased sweating, temperature instability, fever

Corticotrophin increase
Increased stress
Hyperphagia

Serotonin decrease
Sleep deprivation
Sleep fragmentation

Dopamine decrease
Hyperirritability
Anxiety

Lack of opioids in chronically stimulated receptors

↓

Super activation of adenyl cyclase

↓

Increased cyclic adenosine monophosphate

↓

Increased protein kinase

↓

Increased transcription factors

↓

Increased release of neurotransmitters

Noradrenaline increase
Hyperthermia
Hypertension
Tremors
Tachycardia

Acetylcholine increase
Diarrhea
Vomiting
Yawning
Sneezing
Sweating

Other receptor activity increase
Hyperalgesia
Allodynia

Additional Effects of NAS

In utero effects:

- Poor fetal growth
- Preterm birth

Postnatal effects:

- Prolonged hospitalization (including NICU admission)
- Poor postnatal growth, dehydration, and seizures (2-11%)
- At risk for poor neurodevelopmental outcome

NAS & Prematurity

The incidence and severity of withdrawal is less extensive in preterm neonates

- Decreased cumulative exposure
- Decreased transmission across the placenta during early gestation
- Decreased morphine clearance
- Decreased excretion because of immaturity of the kidneys and liver
- Decreased fatty tissues in preterm infants (methadone is accumulated in fatty tissue)
- Decreased receptor development, and decreased receptor sensitivity

Exposures Associated with NAS

Most commonly attributed to exposure to opioids

- Pain relievers: Vicodin, OxyContin, Percocet
- Illicit substances: Heroin, Fentanyl

Cocaine, amphetamines, and barbiturates have also been implicated

Medication Assisted Treatment: Methadone, Buprenorphine

Recommended by ACOG during pregnancy

Time Course of NAS

- Withdrawal symptoms may be observed from right after birth to 4+ days later
- Heroin: 1-2 days after birth
- Methadone: 2-3 days after birth
- Buprenorphine: 2-4 days after birth
- Prescription opiates: 2-4 days after birth
- Symptoms can persist for 7-30 days or longer
- Significant elevation in symptoms after 4 days is rare, but possible

NAS Scoring Scale

- Finnegan Neonatal Abstinence Scoring Tool
- 31 items, published in 1975.
- Modified Finnegan Scoring System revised in 1986
  - 21 of the original items
  - Reorganized into 3 categories
- Lipsitz Neonatal Drug- Withdrawal Scoring System
  - 11 items
- Neonatal Withdrawal Inventory
- Neonatal Narcotic Withdrawal Index

Modified Finnegan Scale

	Time →									
CNS		Score								
Cry	Highpitched, possible to soothe	2								
	Highpitched, not possible to soothe	3								
Sleep	Sleeps < 3 h after feed	1								
	Sleeps < 2 h after feed	2								
	Sleeps < 1 h after feed	3								
Moro-reflex	Over active	2								
	Very over active	3								
Tremor	Moderate tremors disturbed	1								
	Severe tremors disturbed	2								
	Moderate tremors undisturbed	3								
	Severe tremors undisturbed	4								
	Scratch marks	1								
Tone	Increased muscle tone	2								
Seizures	Myoclonic jerks	3								
	Generalised seizures	5								
Respiratory										
Yawning	Frequent yawning >3-4/interval	1								
Nose	Congested nose	1								
Sneezing	>3-4 times/interval	1								
	Nasal flaring	2								
Tachypnea (>60/min)	No retractions	1								
	With retractions	2								
Gastrointestinal										
Sucking behaviour	Excessive sucking	1								
Feeding	Poor feeding	2								
Vomiting	Regurgitation	2								
	Projectile vomiting	3								
Stool	Loose	2								
	Watery	3								
Other symptoms										
	Sweating	1								
Fever	37.2-38.2˚C	1								
	>38.2˚C	2								
Colour	Mottling	1								
TOTAL SCORE										

"The FNASS has been used to guide the management of infants with NAS since its development in the mid-1970s, but despite its wide acceptance, it has never been validated nor have its widely used score cutoffs been tested. The score of 8 appears to be derived from the following quote from Finnegan's original 1975 article: "The infant with a score of 7 or less was not treated with drugs for the abstinence syndrome because, in our experience, he would recover rapidly with swaddling and demand feedings. Infants whose score was 8 or above were treated pharmacologically."

Grossman et. al., 2018

Health & Developmental Outcomes

Opioid Exposure And the Brain

- Clinical studies in children & newborns
- – In utero exposure to opioids shows white matter microstructure changes on MRI
- – Decreased brain volumes (areas of effect are similar to animal studies)
- – Methadone exposure shows similar changes in neonatal brains
- – Correlates with studies showing decreased head circumference in infants with neonatal abstinence syndrome (NAS)

JAMA Netw Open. 2019;297):e197025. doi:10.1001/jamanetworkopen.2019.7025

NAS and Newborn Head Circumference

	Subjects	Controls	Signif.
Number	332	332	
HC $\leq 10^{th}$%	98(29.5%)	41(12.3%)	p<.001
HC $\leq 3^{rd}$%	25(7.5%)	5(1.5%)	p<.001
HC $\leq$10%>3%	73(22%)	36(10.8%)	p<.001
SGA/IUGR	54(16.3%)	37(11.1%)	p=0.07
HTN etc.	65(19.6%)	69(20.8%)	p=0.8
Diabetes	26(7.8%)	36(10.8%)	p=0.2

Study shows fetuses exposed to Methadone during pregnancy had significantly smaller head size compared to fetuses not exposed to opioids

Towers; Hyatt; AJOG 2018 Neonatal Head Circuference in newborns with NAS vs controls https://www.ajog.org/article/S0002-9378(17)31739-8

Health & Developmental Outcome Data

	No detected exposure		*Opioid exposure with NAS*		
	N = 14,933		*N = 138*		P *value*
Behavioral or emotional disorder; N,%	171	1.1	8	5.8	<0.0001*
Developmental delay; N,%	1138	7.6	39	28.3	<0.0001*
Hepatitis C exposure; N,%	21	0.1	48	34.8	<0.0001*
Motor function developmental disorder; N,%	215	1.4	7	5.1	0.0004*
Otitis media; N,%	4221	28.3	43	31.2	0.45
Plagiocephaly; N,%	270	1.8	14	10.1	<0.0001*
Sensory disorder; N,%	1095	7.3	29	21.0	<0.0001*
Speech disorder; N,%	964	6.5	19	13.8	0.0005*
Strabismus; N,%	149	1.0	15	10.9	<0.0001*
Torticollis; N,%	322	2.2	12	8.7	<0.0001*

NAS, neonatal abstinence syndrome.
*Statistical significance after Bonferroni-Holm correction for multiple comparisons.

Population Health Manag. 2019 Feb;22(1):19-24

Developmental Outcome

Retrospective cohort study of 87 infants with NAS

- Children treated for NAS scored significantly lower than the norm (mean 100) on all 3 subscales
- cognitive mean 96.5
- language mean 93.8
- motor mean 94.0
- Higher rates of strabismus
- Infants in Foster/adoptive care associated with higher scores

J. Perinatol. 2018 May;38(5):587-592

Neurodevelopmental Outcome by Substance

Table 3. Potential effects of prenatal drug exposure on birth outcomes, central nervous system development, cognitive function, and behavior

Substance	Birth Effects	**Effects on CNS development, cognitive function, and behavior**
Nicotine	• Prematurity • Decreased birth height, weight, head circumference • Sudden infant death syndrome • Increased infant mortality rate	• Excitability, hypertonia • Conduct disorder, reduced IQ, aggression, antisocial behavior, impulsivity, ADHD
Marijuana	• No fetal growth effects • No physical abnormalities	• Prematurity • Decreased birth height, weight, head circumference • Intraventricular hemorrhage
Cocaine	• No fetal growth effects • No physical abnormalities	• Mild withdrawal symptoms; poor autonomic control, particularly of state regulation (the ability to adjust one's level of alertness as required for a task) • Executive function impairment, reading and spelling difficulty
Methamphetamine	• Small for gestational age • Decreased birth weight	• Poor movement quality, lower arousal, increased lethargy, increased physiological stress • No mental or motor delay
Cocaine	• No fetal growth effects • No physical abnormalities	• Mild withdrawal symptoms; poor autonomic control, particularly of state regulation (the ability to adjust one's level of alertness as required for a task) • Executive function impairment, reading and spelling difficulty
Heroin/Opioids	• Prematurity • Decreased birth height, weight, head circumference • Sudden infant death syndrome	• Neonatal abstinence syndrome, less rhythmic swallowing, strabismus • Possible delay in general cognitive function, anxiety, aggression, disruptive/inattentive behavior

Wendell AD. Overview and epidemiology of substance abuse in pregnancy. Clin Obstet Gynecol . 2013;56:91-96.

Behnke M, Smith VC, Committee on Substance Abuse, Committee on Fetus and Newborn. Prenatal substance abuse: short- and long-term effects on the exposed fetus. Pediatrics . 2013;131:e1009-e1024.

Queensland Maternity and Neonatal Clinical Guidelines Program. Neonatal abstinence syndrome. 2010; Queensland, Australia. Available at www.health.qld.gov.au/qcg/documents/g_nas5-0.pdf

More Developmental Outcome

- Infants exposed to opioids in utero and in the neonatal period are at risk for later cognitive, language, attention, and visual problems and poorer academic achievement

Br J Ophthalmol. 2010; 94(6):696–700,Br J Ophthalmol. 2014; 98(2):238–245

Early Hum Dev. 2015; 91(1):19–21,Pediatr Res. 2015; 78(3):330–335

Toxicol Lett. 2003; 140–141:171–181,Early Hum Dev. 2008; 84(1):29–35,

Pediatrics. 2017; 139(2)

Treatments?

Treatment

- No established optimal treatment
- 2005 Cochrane reviews suggest lack of high-quality evidence for any specific treatment

Treatment Goals

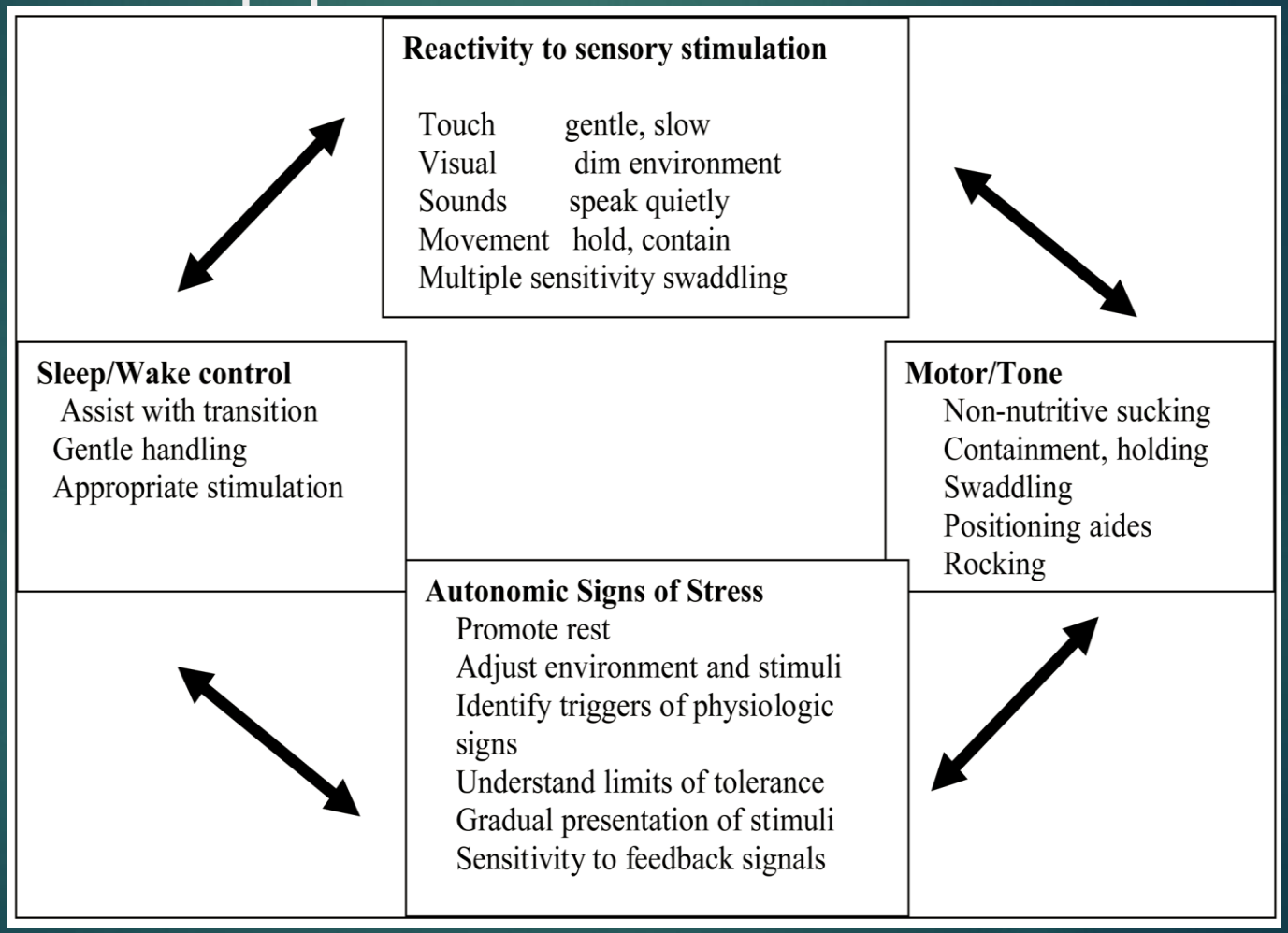
- Enable infant to feed and gain weight
  - Frequently need increased caloric density of formula due to high metabolic rate
- Prevent seizures and other morbidities
- Reduce unnecessary hospitalization
- Improve/monitor family interaction/care
- Reduce infant mortality; improve outcomes
- **Limit additional opioid exposure**

AAP Guidelines for NAS

- Initiate **non-pharmacologic measures first**
- The optimal threshold 'score' for initiating pharmacologic therapy is unknown
- **Breast-feeding** should be encouraged if no illicit drug use and in absence of contraindications
- Oral morphine, methadone—best evidence (but limited); Phenobarbital/clonidine—as adjunct therapy in polysubstance exposed infants
- Observe exposed infants for 4-7 days
- Treatment of drug withdrawal may not alter long-term outcome

Hudak Pediatr 129:e 540, 2012

Non-pharmacologic approach to NAS



Pharmacotherapies

Morphine

- Oral solution starting at 0.4 mg/kg/d divided q 3 or q4, infant has to be off Morphine for 72 hrs prior to discharge

Methadone

- Allows for discharge on medication, decreasing length of inpatient stay

Buprenorphine

- RCT showing shortened treatment length by ~10 days compared to morphine

Clonidine

- Occasional adjunctive treatment
- Early data suggest more comprehensive symptom reduction and shorter weaning period

Phenobarbital

- Rarely used as a first-line treatment anymore, except in locations with high polysubstance abuse
- More common adjunctive treatment (added when opioids not enough)

Breastfeeding & NAS

Benefits of Breastfeeding in NAS

- Breastfeeding increases mother-infant bonding
- Enhances maternal confidence
- Encourages active maternal participation in the management of the infant
- Improves maternal stress response
- Decreases maternal post-partum depression
- Breastfeeding may decrease the incidence of NAS, the need for pharmacological treatment and the length of the hospital stay
- Contraindications: illicit drug/poly drug use and HIV positive mothers, active HSV lesions on breasts

A new approach to NAS treatment

- Eat, Sleep Console approach
- Family centered approach with infant mother/care giver dyad
- Mother/family is considered the medicine for infant

Hospital Pediatrics January 2018, 8 (1) 1-6

Hospital Pediatrics August 2019, 9 (8) 615-623

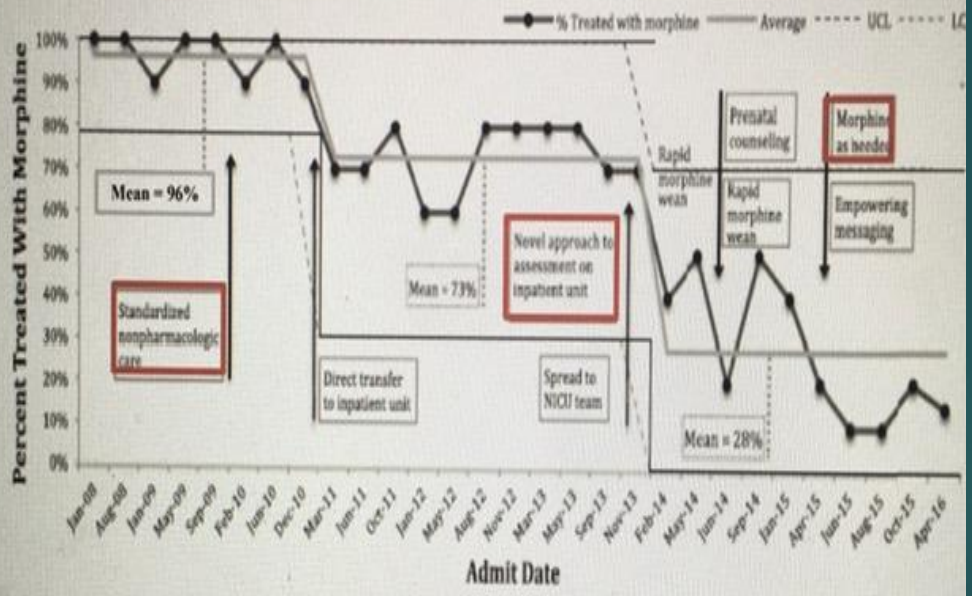
Background to Eat, Sleep Console Approach

Eat, Sleep, Console (ESC) has been developed that focuses on the comfort and care of these infants by maximizing non-pharmacologic methods, increasing family involvement in the treatment of their infant, and prn or "as needed" use of morphine

Hospital Pediatrics January 2018, 8 (1) 1-6

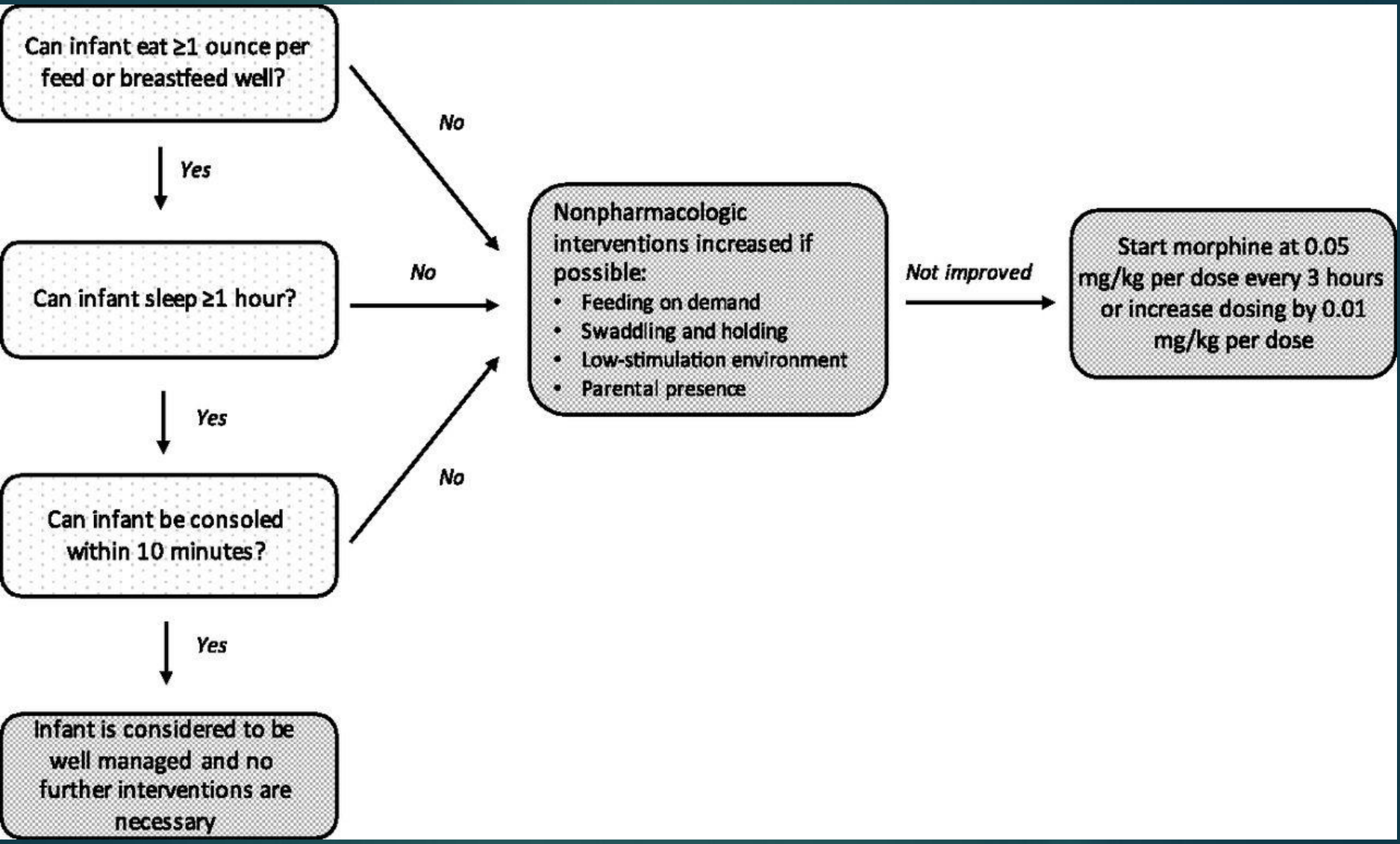
An Initiative to Improve the Quality of Care of Infants With Neonatal Abstinence Syndrome

Matthew R. Grossman, MD,[a] Adam K. Berkwitt, MD,[a] Rachel R. Osborn, MD,[a] Yaqing Xu, MS,[b] Denise A. Esserman, PhD,[b] Eugene D. Shapiro, MD,[a,c] Matthew J. Bizzarro, MD[a]



- **Morphine Rx decreased**: 98% → 14%
- **LOS decreased**: 22.4 days → 5.9 days
- **Hospital costs decreased**: $44,824 → $10,289

Eat, Sleep, Console Approach



Associated Benefits of ESC Approach

- Empowers mothers as caregiver
- Encourages a conducive environment for successful breastfeeding
- Support a holistic continuum of care
- Builds self esteem and confidence
- Support the family's ability to care for the infant after discharge

New Combination Approach

Until we establish our Nesting rooms for Eat Sleep Console

- Create an inviting environment for parents of NAS babies to become more involved in their babies' care
- Educate medical and nursing staff about non-judgmental approach
- Encourage breast feeding for mothers in established programs with negative urine drug screens in absence of other contra-indications
- Admit baby to IICN if clinically indicated
- Monitor NAS scores
- If scores high ≥8 start rescue dose of Morphine 0.05 mg/kg/dose
- Continue NAS scoring every 3 hours Finnegan/ESC scoring systems
- Start maintenance dose if infant needs >3 rescue doses

Discharge

Preparing for discharge

- All new moms face challenges
- Taking care of infants with NAS is much more difficult
- Infant is still dependent on mom or caregiver
- Infants with NAS can have diarrhea, diaper rash, failure to thrive, difficult to console
- Mother/caregiver should be cued to the infant's needs
- Continuation of Eat-Sleep-Console approach at home
- Reviewing safe sleep/back to sleep practice
- Reviewing shaken baby syndrome, Infants with NAS at higher risk for shaken baby syndrome
- Close follow up appointment with Pediatrician and arranging home visits by visiting nurses for weight check
- Mothers should be encouraged to take care of themselves in order to be ready to take care of the infant
- Supporting the mother is the key factor to the infant's wellness

Conclusion

- NAS is a pressing public health issue with significant social and economic implications
- Joint prenatal approach OB and Neonatology
- Family centered approach is key in treatment of infants of NAS
- Breastfeeding should be encouraged in absence of contraindications
- Referral to Early Intervention Services is indicated
- Infants with NAS are at increased risk for (seen in short-term studies):

Behavioral and Emotional problems, Health related problems,

Poor cognitive, language and motor development &

Poor academic performance

Longitudinal studies are needed to evaluate long-term effects

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Thank you

IMPORTANT POINTS

- Breastfeeding has benefits and is encouraged if no concerning maternal illicit substance use or infectious contraindications
- Heavy cigarette smoking, benzodiazepine use, and opioid exposure in the latter part of the pregnancy contribute to Neonatal Abstinence Syndrome
- Treatment is a combination of non-pharmacological and pharmacological approach

AN INTRODUCTION TO:

Philadelphia

LIFTS

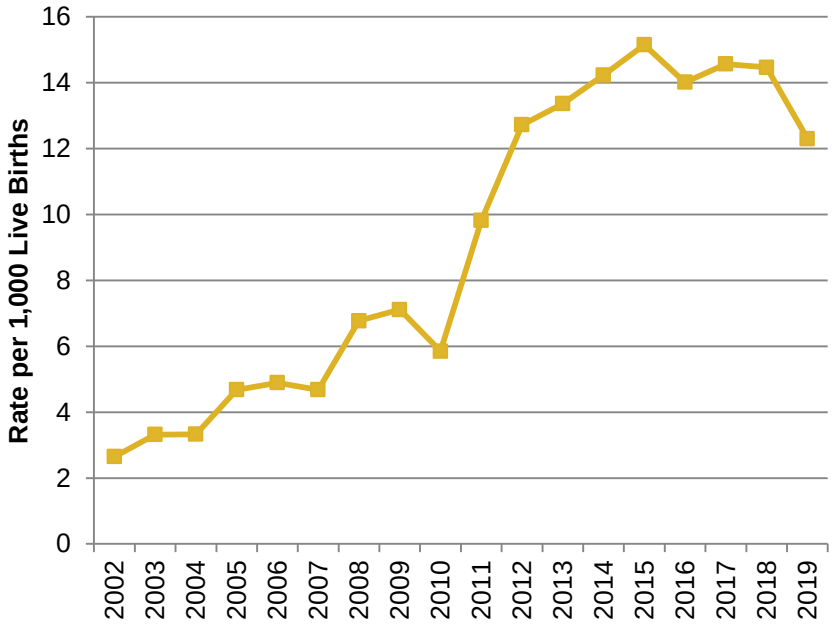
Linking **I**nfants and **F**amilies **T**o **S**ervices

Philadelphia's Neonatal Abstinence Syndrome Program

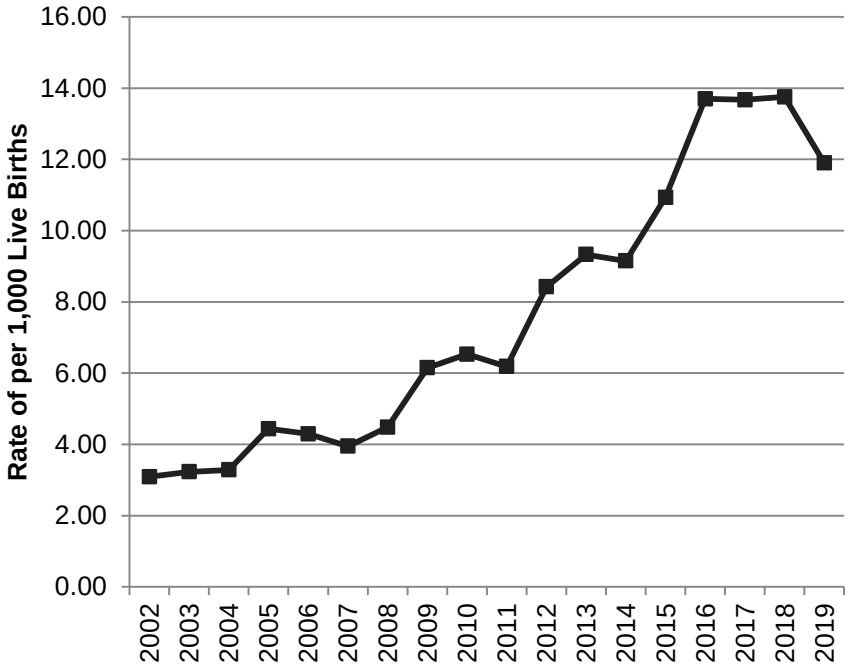
Department of Public Health
CITY OF PHILADELPHIA

Historical Rates of Maternal Opioid Use/Dependence and NAS

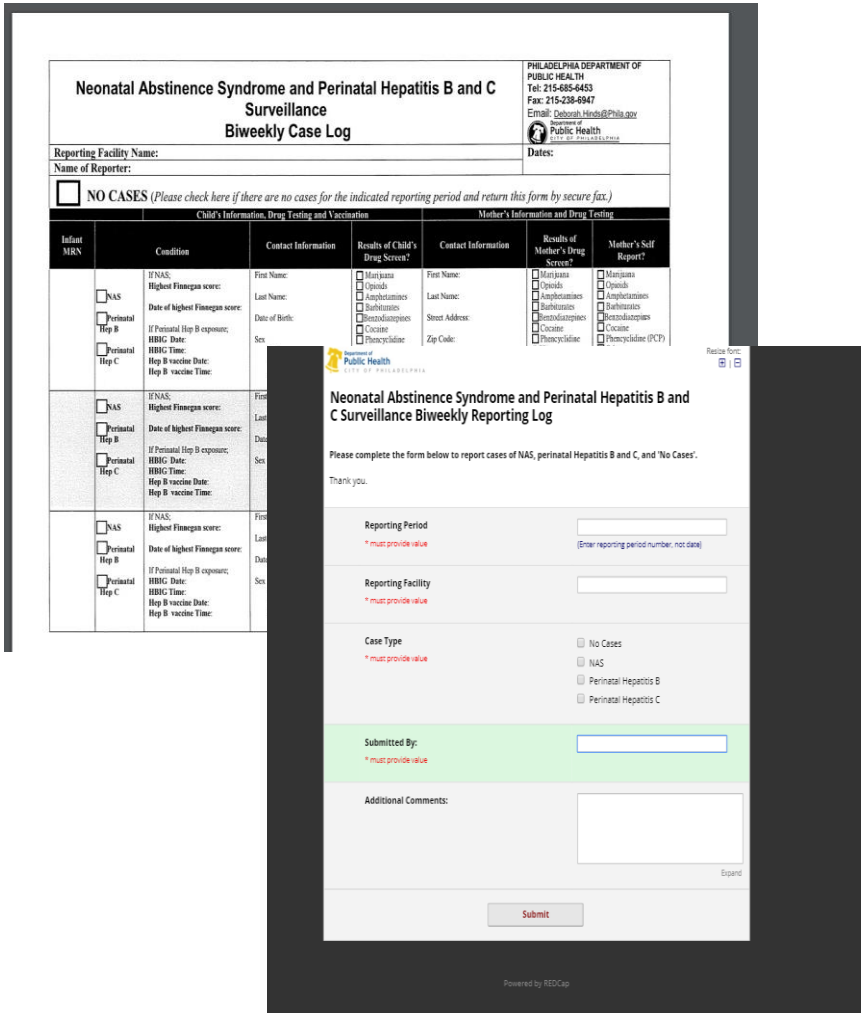
Rate of Maternal Opioid Use or Dependence per 1,000 Live Hospital Births by Year, 2002-2019



Rate of Neonatal Abstinence Syndrome per 1,000 Live Births by Year, 2002-2019

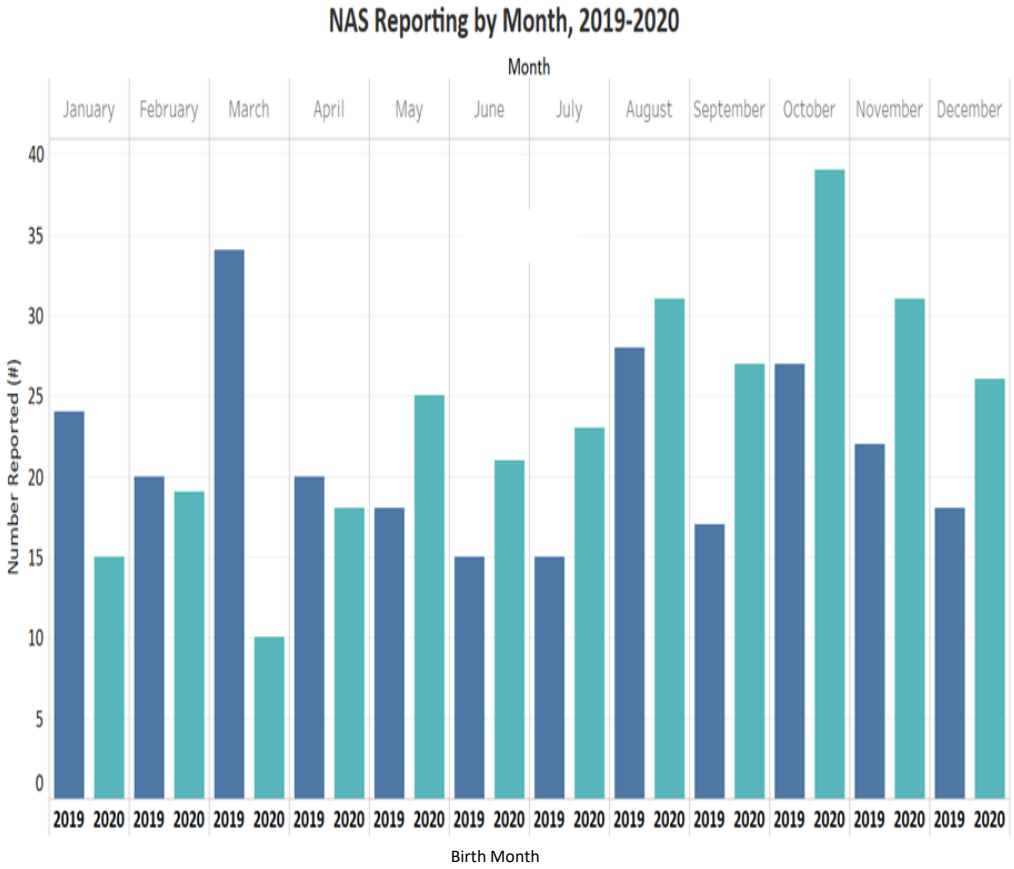


- Data courtesy of PHC4
- Based upon surveillance data, rate for 2019 is 12.72 per 1, 000 live births



NAS Reporting

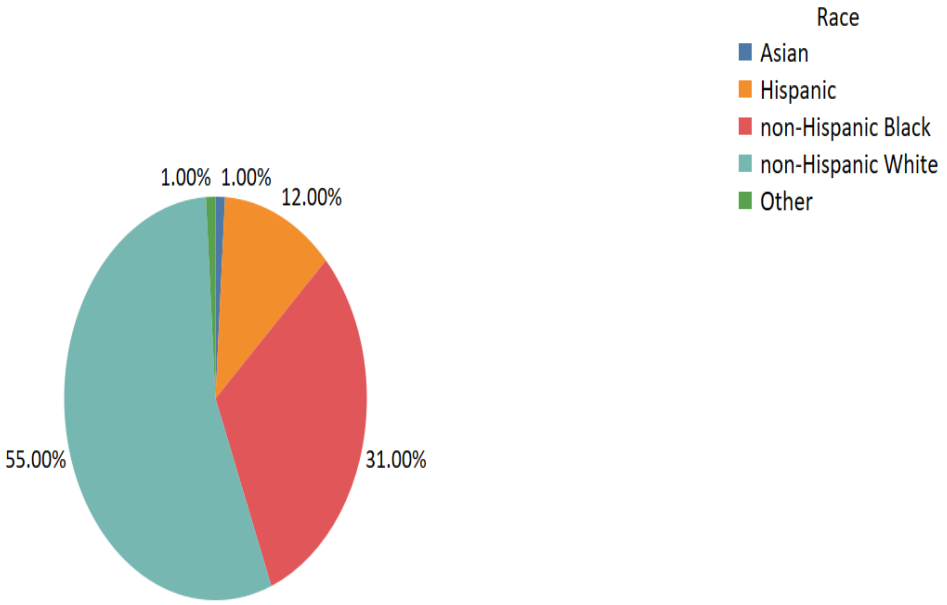
Mandated in October 2018
Began receiving files from state in November 2018
Hospitals reporting directly to PDPH on March 11, 2019
Reporting criteria: Finnegan score ≥8, known or suspected prenatal substance use, exhibiting at least 1 symptom consistent with withdrawal
As of May 2020, Finnegan score threshold lowered to ≥3
Bi-weekly reporting schedule and form adapted from Zika/Birth Defects surveillance
Transition to electronic reporting via REDCap in April 2020



NAS reporting

- As of August 2020, 100% reporting from Philadelphia based birthing and pediatric hospitals and hospitals in surrounding counties
- 2019 - 260 infants reported
  - ~21 per month
- 2020 - 271 infants reported
  - ~24 per month

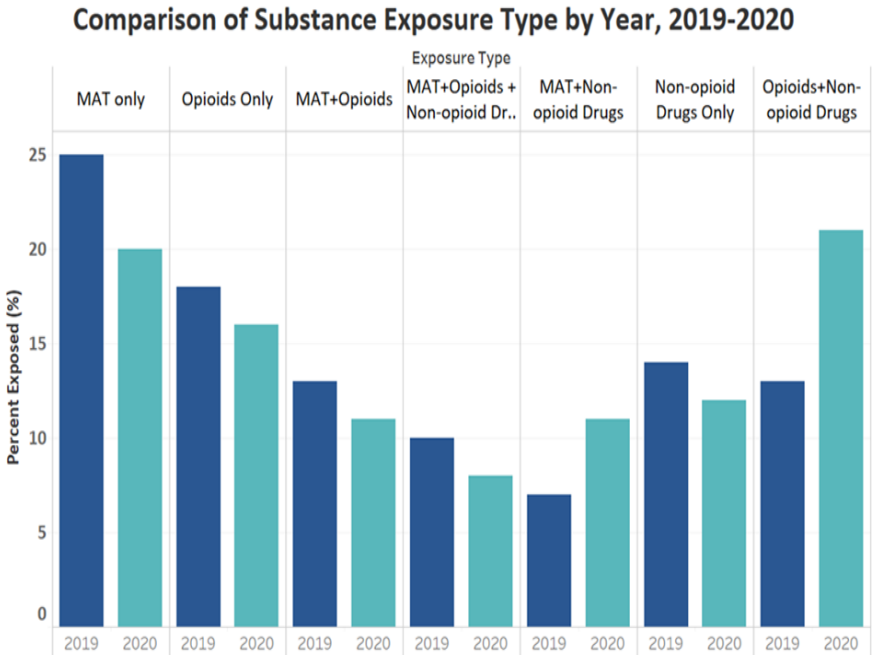
Race/Ethnicity Percentage of the Mothers of Infants Diagnosed with NAS, 2019-2020



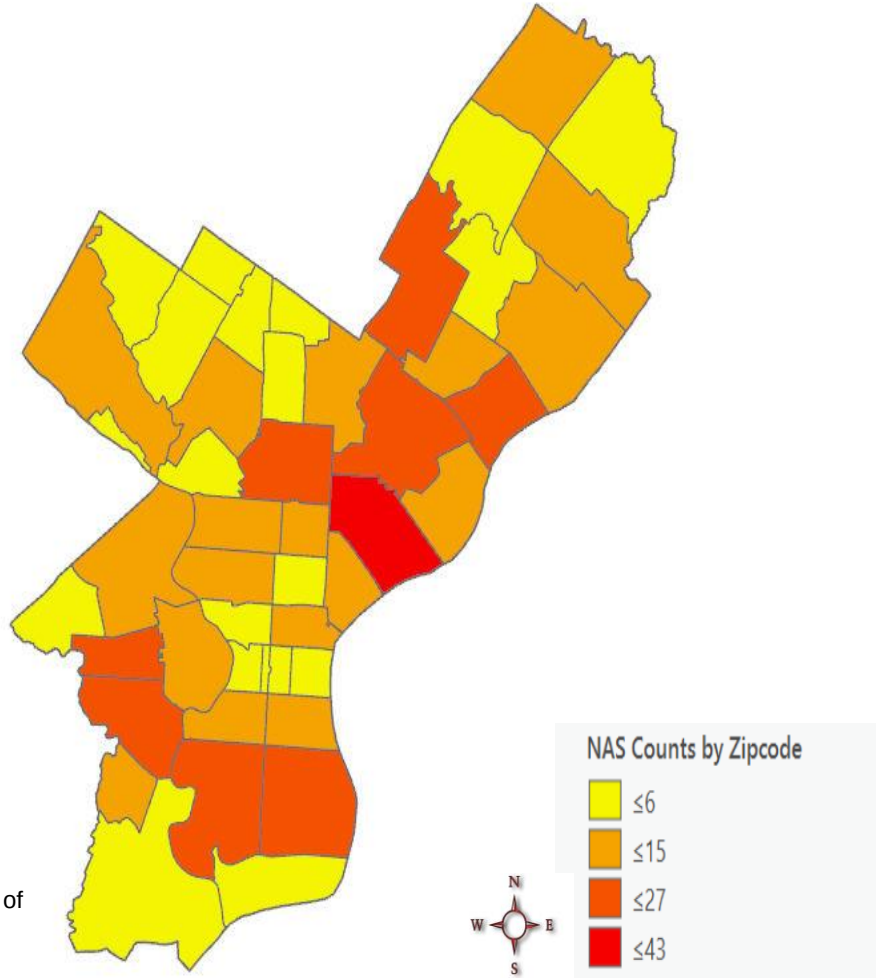
- While non-Hispanic White birthing persons accounted for only 28% of live births in Philadelphia, they are disproportionately represented in births to infants diagnosed with NAS

SURVEILLANCE DATA,2019-2020

- Increase in opioids with non-opioids exposure from 2019 to 2020
- Disparity in MAT exposure
  - Only 31% non-Hispanic Black parenting persons compared to 57% and 52% of non-Hispanic Whites and Hispanics, respectively
- Possible effects of pandemic related restrictions
  - Decrease in MAT exposure
  - 6% increase in Buprenorphine exposure from 2019 to 2020
  - 11% decrease in Methadone exposure from 2019 to 2020



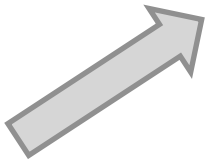
Geographic Distribution of Reported NAS Cases by Zip-code, 2019-2020

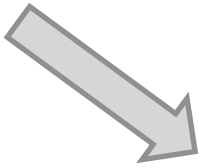


Source: Philadelphia Department of Public Health Division of Substance Use Prevention and Harm Reduction, NAS Surveillance Data

ABOUT THE PROGRAM

MOTHERS OF INFANTS DIAGNOSED WITH NAS AND THEIR FAMILIES





HARM REDUCTION TRAINING

LINKAGE TO A VARIETY OF TREATMENT AND SOCIAL SERVICES IN PHILADELPHIA.

SERVICES WE OFFER

One home visit with a nurse

- Basic Infant Check-up
- New Parent Counseling

Harm Reduction Training- Narcan, etc.

Referrals to:

- Substance Use Recovery (MAT)
- Employment Services
- Food Access (TANF, SNAP, Food banks and pantries)
- Case Management/Home Visiting Programs
- Medical Services
- And More…

NAS OUTREACH AND OTHER OUTCOMES

Families successfully contacted

- 214 (40%)

Families linked to services

- 59 (28%)
- Narcan, home visiting programs, substance use treatment, supplies (food, clothing, toys, car seats)

- 20 (3%) maternal questionnaires completed
  - 20% experienced an overdose
    - 55% witnessed an overdose
    - 70% trained in overdose reversal using naloxone
  - 72% receiving mental health treatment
    - 84% have family history of mental health diagnosis
- 26 deaths of birthing persons who gave birth during 2019-2020
  - 46% overdose related
    - 27% were birthing persons of infants diagnosed with NAS
    - 39% of all other birthing persons had a cause of death of accidental poisoning
  - Fentanyl positive in toxicology results of 82% of the overdosed related deaths

HOW YOU CAN HELP

Counsel patients on NAS and Harm Reduction

Refer patients to the program

CONTACT INFORMATION

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215-776-4406 (cell)

Department of
Public Health
CITY OF PHILADELPHIA

Hepatitis C in Women with SUD

Overlap of substance use disorder and HCV

- 78% of pregnant people with HCV had past/present SUD

Dual diagnoses of HCV exposure and NAS in infants

- 36% of infants born with a known HCV exposure also had a documentation of NAS diagnosis

Importance of testing for HCV in Prenatal Care:

- Pregnancy may be the first diagnosis of HCV (>30%)
- Prenatal care should serve as an opportunity to refer to HCV-treatment and other services→ HCV is curable and should be treated early to prevent liver damage
- Perinatal transmission → if maternal status unknown, may not be diagnosed for decades

CDC now recommends all pregnant persons are tested during each pregnancy

- Providers should order an HCV antibody test with reflex to HCV RNA

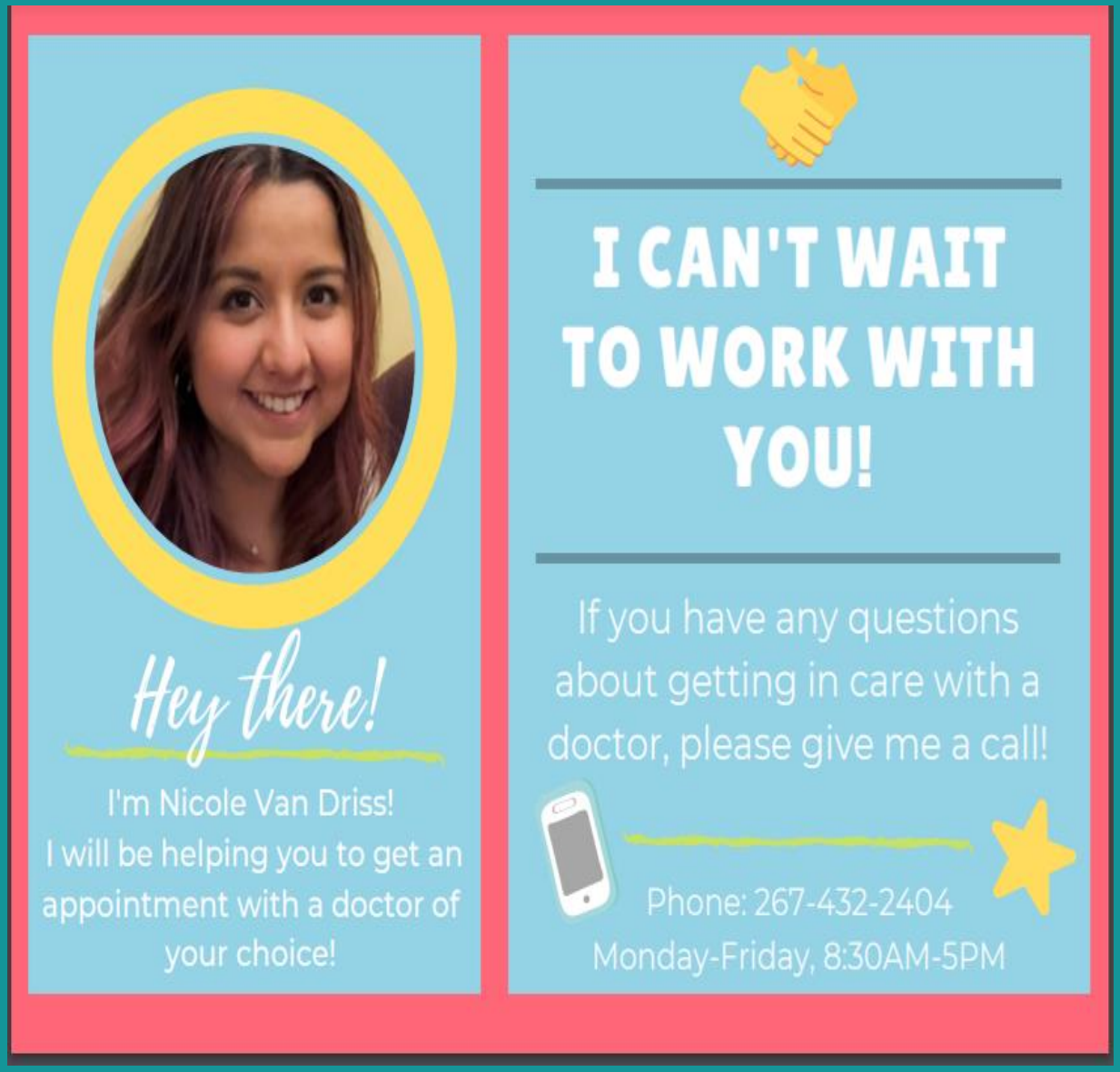
Department of Public Health
CITY OF PHILADELPHIA

For prenatal provider and patient support:

Contact the Perinatal Hepatitis C Program at: **215-685-6849**

Perinatal HCV Epidemiologist: Emily Waterman | Emily.Waterman@phila.gov

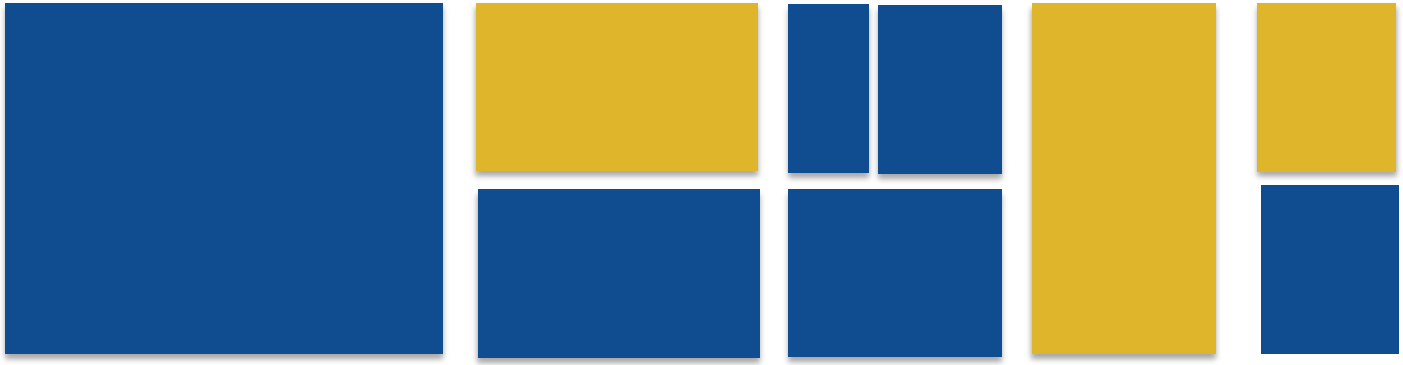
Meet the New Hepatitis C Outreach Specialist



The Hepatitis C Outreach Specialist (HCOS) will work to improve HCV and SUD outcomes for people living in Philadelphia, as a part of PDPH. We will use data to care approaches to 1) identify people who use drugs (PWUD) and are living with HCV and 2) connect them with any services or resources they need. These include, but are not limited to drug treatment, hepatitis treatment, medical care, harm reduction services and social services.

Contact Nicole for more information:
Nicole.VanDriss@phila.gov

THANK YOU



HEALTH FEDERATION
OF PHILADELPHIA

Certified Recovery Specialists and Harm Reduction Strategies to Support Women with OUD

Nicole O'Donnell, CRS

Penn Medicine

City of Philadelphia
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ANAC
Association of Nurses in AIDS Care

DREXEL UNIVERSITY
College of Medicine

HARM REDUCTION DEFINITION

Harm reduction is a set of practical strategies and ideas aimed at reducing negative consequences associated with drug use.

Harm reduction incorporates a spectrum of strategies from safer use, to managed use to abstinence to meet people who use drugs "where they're at."

Adapted from the Harm Reduction Coalition

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HARM REDUCTION CORE PRINCIPLES

- Drug use as a complex, multi-faceted phenomenon that encompasses a continuum of behaviors.
- Non-judgmental, non-coercive provision of services
- Affirms individuals as agents of reducing the harms of their drug use.
- Recognizes the impact of social inequalities on people's vulnerability and capacity to manage drug-related harms.

Adapted from the Harm Reduction Coalition

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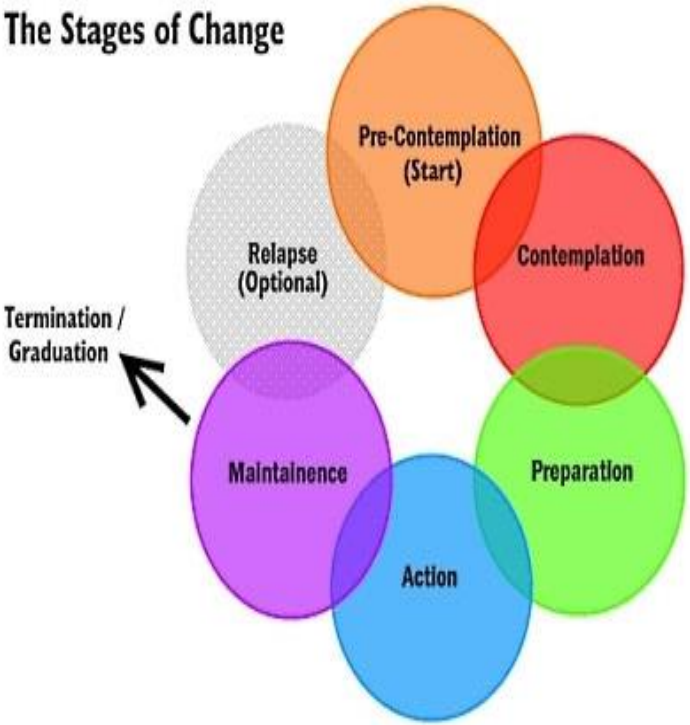
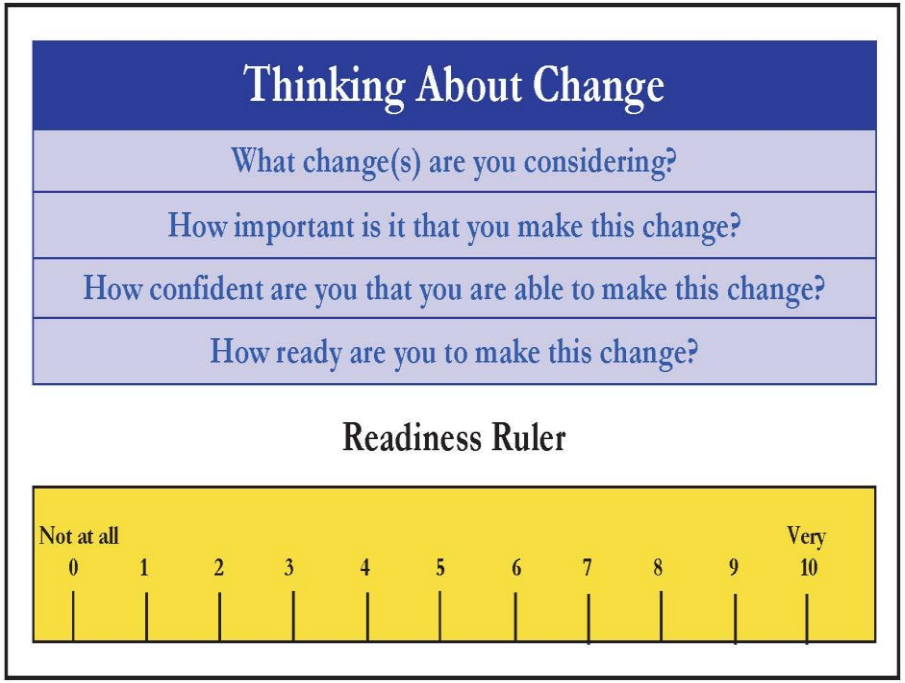
MEETING PEOPLE "WHERE THEY'RE AT"

Behavior change exists on a continuum





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MEETING PEOPLE "WHERE THEY'RE AT"

Reality may look more like this ….

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KEY SKILLS

- Person-first language
- Trauma-informed care
- Motivational Interviewing-inspired skills

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CONVERSATIONAL STYLES

Persuasion

Convince the person

Provider as expert

Gives in to the “righting reflex”

Decision made by provider

Motivational Interviewing

Elicit motivation for change

Provider as a coach

Seeks to understand

Decision made collaboratively

Slide courtesy of Dr. Scott Steiger

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EXPRESSING EMPATHY

Validation is a process in which a listener communicates that a person's thoughts and feelings are understandable and legitimate.

Can involve active listening, accurate reflection, and conveying empathy / understanding.

Slide courtesy of Dr. Scott Steiger

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AVOID ARGUMENTATION

Don’t try to convince & avoid arguing

Ask open-ended questions to understand the patient’s perspective

Double sided reflection: capture both sides of the issue

Shift focus: move away from the obvious barrier onto a less contentious part of the problem

Slide courtesy of Dr. Scott Steiger

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TEACHING POINTS

1. Create a safe space so patient feels comfortable coming back if and when she is ready.

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TEACHING POINTS

2. Prescribe naloxone for overdose prevention for all patients with OUD whether or not they are interested in treatment

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TEACHING POINTS

3. Counsel on safer use practices and strategies to lower risk associated with injection

- Don’t use alone
- Clean injection site
- Go slow, use a test dose
- Don’t share needles or other equipment (”works”)
- Refer to syringe exchange service (e.g. Prevention Point, Angels in Motion)
- Fentanyl test strips

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TEACHING POINTS

4. Address other health issues related to substance use

- HIV and HCV testing and treatment
- Immunizations – Hep B, Hep A, Tdap
- Offer PrEP

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TEACHING POINTS

5. Counseling patients on starting treatment

The best treatment option is the one that works for the patient

That being said, medications for OUD are the evidence-based option. Not every patient will want this, but help patients make the most informed decision by appropriately discussing the risks and benefits.

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Challenges for patient conversations

1. Misinformation: “replacing one addiction with another”, “not really clean”
2. Prior negative experience: Many have tried meds, either in healthcare or non-healthcare settings, and may have had bad experiences (e.g. precipitated withdrawal, rapid taper for detox)
3. Unrealistic expectations: “I want to be on this just for a few months”

Discussion points with patients

- What does it mean to be in recovery?
- Elicit patient values and preferences – previous experiences, structure, convenience, etc
- Informed decision-making regarding risks or challenges with each type of treatment

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Medications for OUD only address opioid use disorder!

Do NOT discontinue buprenorphine if you are seeing improvement in OUD

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Meet the patient where he/she is and support their needs

- Reinforce and strengthen relationship
- Increase social supports
- Address underlying issues e.g. mental health
- Referrals as appropriate (e.g. inpatient treatment for severe benzo use disorder)
- Increase structure (shorter follow-up)

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WHAT HAPPENS WHEN…

MY PATIENT USES OPIOIDS?

Reassure patient (and yourself) that this is a normal part of the disease course.

Normalize this issue

Reinforce successes

- “slip” vs. full return to use
- “think back to X months ago and tell me how this would have gone…”

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MY PATIENT USES OPIOIDS?

Treatment strategies

- Keep engaged!
- Closer follow-up
- Address concurrent stressors or medical conditions
- Increase dose of buprenorphine if reporting cravings or withdrawal symptoms and not at max dose
- Consider long-acting injectable buprenorphine (Sublocade)
- Consider referral to opioid treatment program for methadone if needing more structure, but caution in requiring this because often “higher level of care” = No care

MY PATIENT USES OPIOIDS?

Harm Reduction

- Review with patient that tolerance may be decreased and urge them to use less
- Make sure they have naloxone
- Other strategies for safer use:
  - Don’t use alone
  - Clean injection site
  - Go slow, use a test dose
  - Don’t share syringes or other equipment (”works”)
  - Refer to syringe exchange service (e.g. Prevention Point, Angels in Motion)
  - Fentanyl testing strips

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MY PATIENT USES OPIOIDS?

Document decision-making

- Patient has reduced use of illicit fentanyl/heroin/opioids, has not overdosed, [other improvements] and benefits of continued buprenorphine treatment outweigh risks.
- I have discussed risks of concurrent substance use with patient and provided naloxone and counseling on overdose prevention strategies.

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MY PATIENT WANTS TO STOP THEIR BUPRENORPHINE?

Buprenorphine should be prescribed “as long as it continues to benefit the patient”

Discuss reasons for stopping

- What does it mean to be in recovery?
- Is this coming from the patient or pressure elsewhere?
- Are other chronic medical and psychiatric conditions well-controlled?
- If tapering, slow and patient-centered

MY PATIENT MAY BE DIVERTING THEIR BUPRENORPHINE?

- What to worry about?
- How to discuss the issue
- Offer alternatives
  - Supervised dosing (if available)
  - Injectable long-acting buprenorphine (Brand Name: Sublocade)
  - Higher level of care
  - Discharge with option to return

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OTHER RESOURCES

- Providers Clinical Support System (https://pcssnow.org)
- Project SHOUT (https://www.projectshout.org)
- UCSF Clinician Consultation Center (http://nccc.ucsf.edu)
- Motivational Interviewing Workshop (https://motivationalinterviewing.org)

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THANK YOU

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HEALTH FEDERATION
OF PHILADELPHIA

Q&A

- PostTest
- Evaluations

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ANAC
Association of Nurses in AIDS Care

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