Caring for Mothers and Infants who are Opioid-Exposed

Home Visiting Conference

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PRESENTATION GOALS

- Review signs / symptoms of neonatal opioid withdrawal syndrome (NOWS)
- Discuss benefits of and challenges with breastfeeding for opioid exposed infants
- Review recommendations regarding infant feeding for opioid exposed infants

OUTLINE

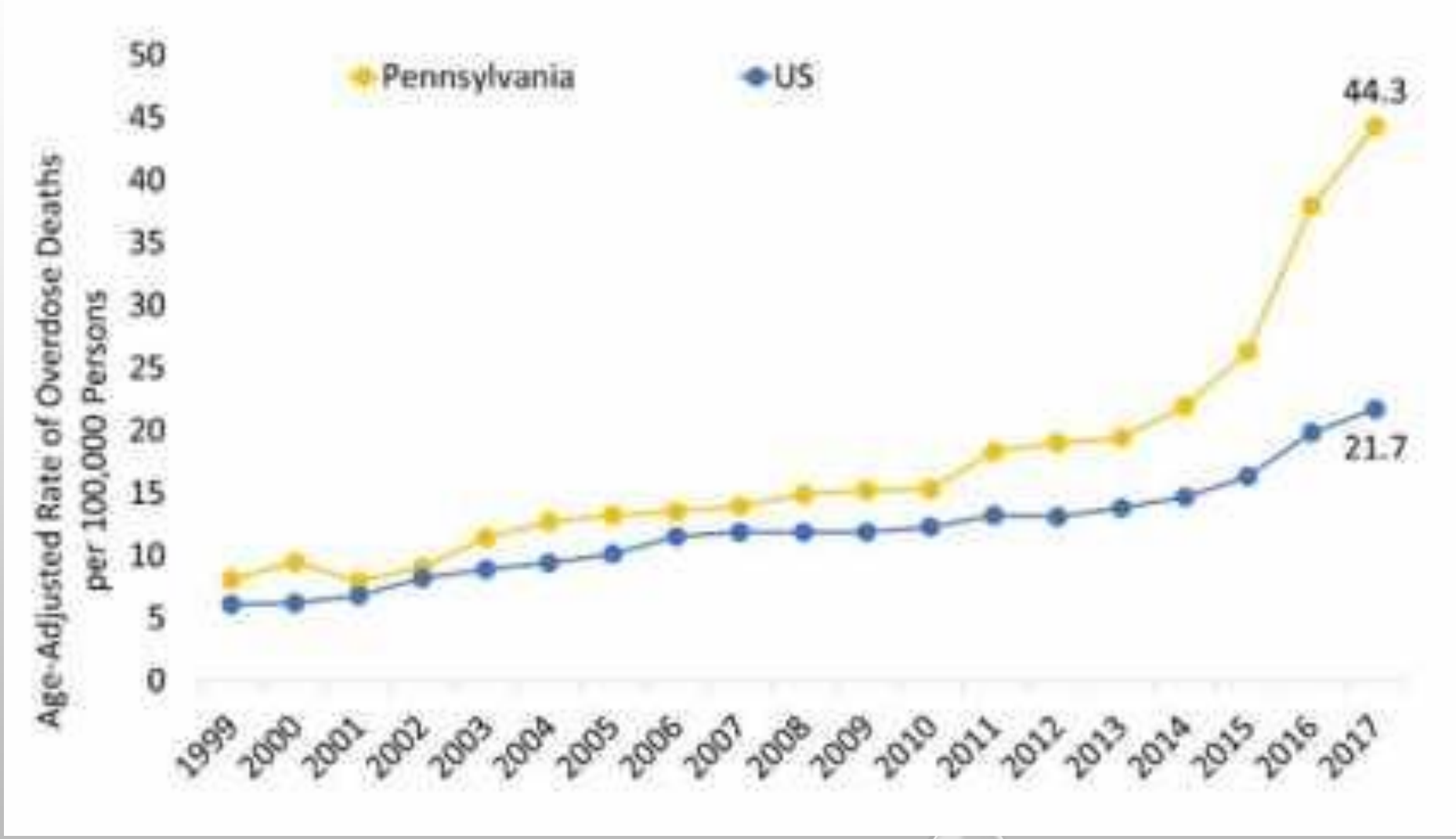
1. **Review current opioid use in pregnancy**
2. Define NOWS and reviews its presentation
3. Treatment for NOWS in hospital
4. Breastfeeding for infants with NOWS
5. Behavior and Development Outcomes
6. Outpatient / Follow-up needs

OPIOID EPIDEMIC

- Leading cause of death for Americans age < 55
  - Ahead of car crashes and gun violence
- Opioid epidemic death toll exceeded those of wars in Vietnam and Iraq combined
- Every 11 minutes, another life is lost from opioid overdoses
- Has not spared women of child bearing age

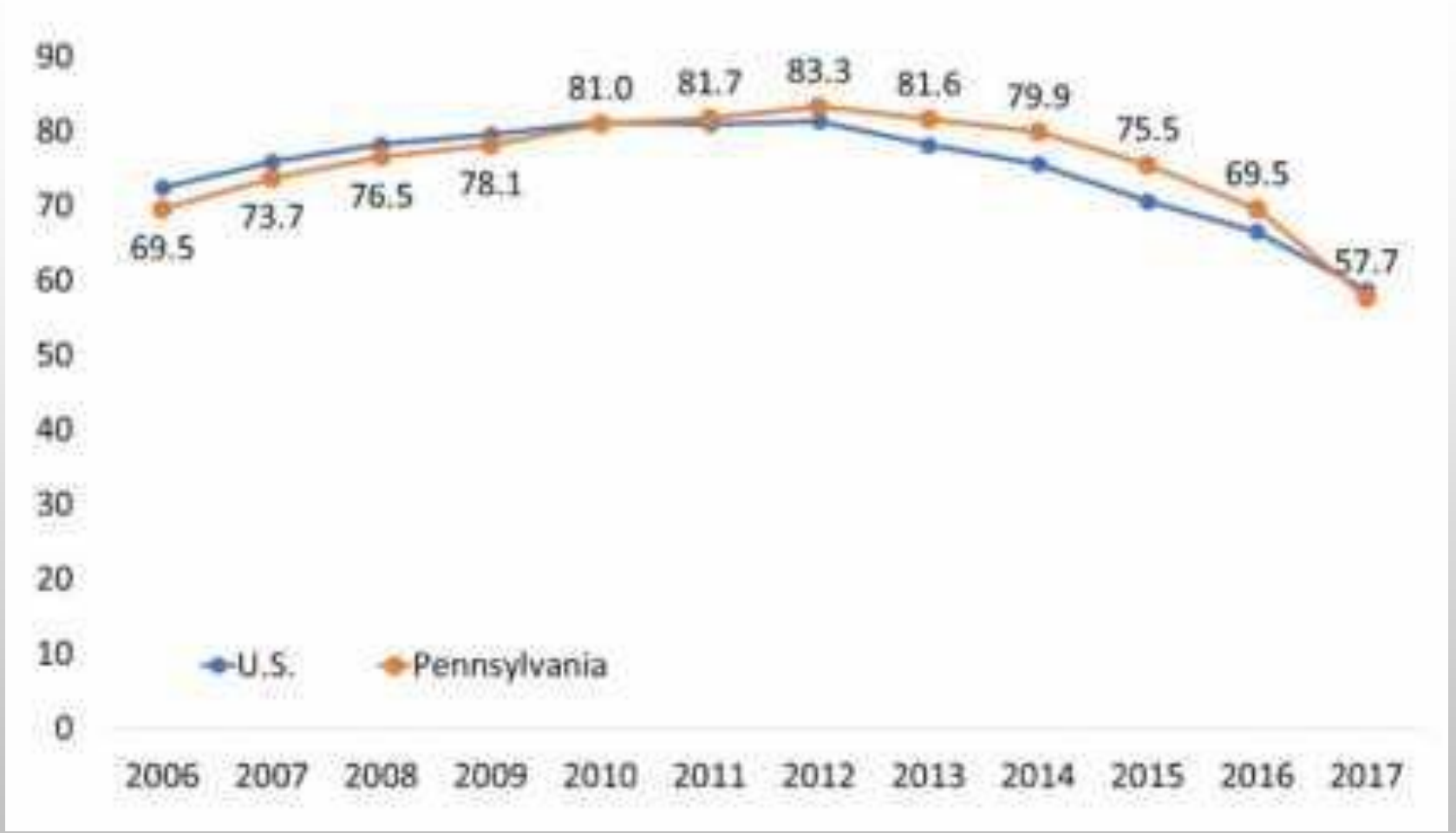
https://data.pa.gov/stories/s/9q45-nckt/

OVERDOSE DEATHS: US AND PA



https://www.drugabuse.gov/opioid-summaries-by-state/pennsylvania-opioid-summary

OPIOID PRESCRIBING RATES: US AND PA



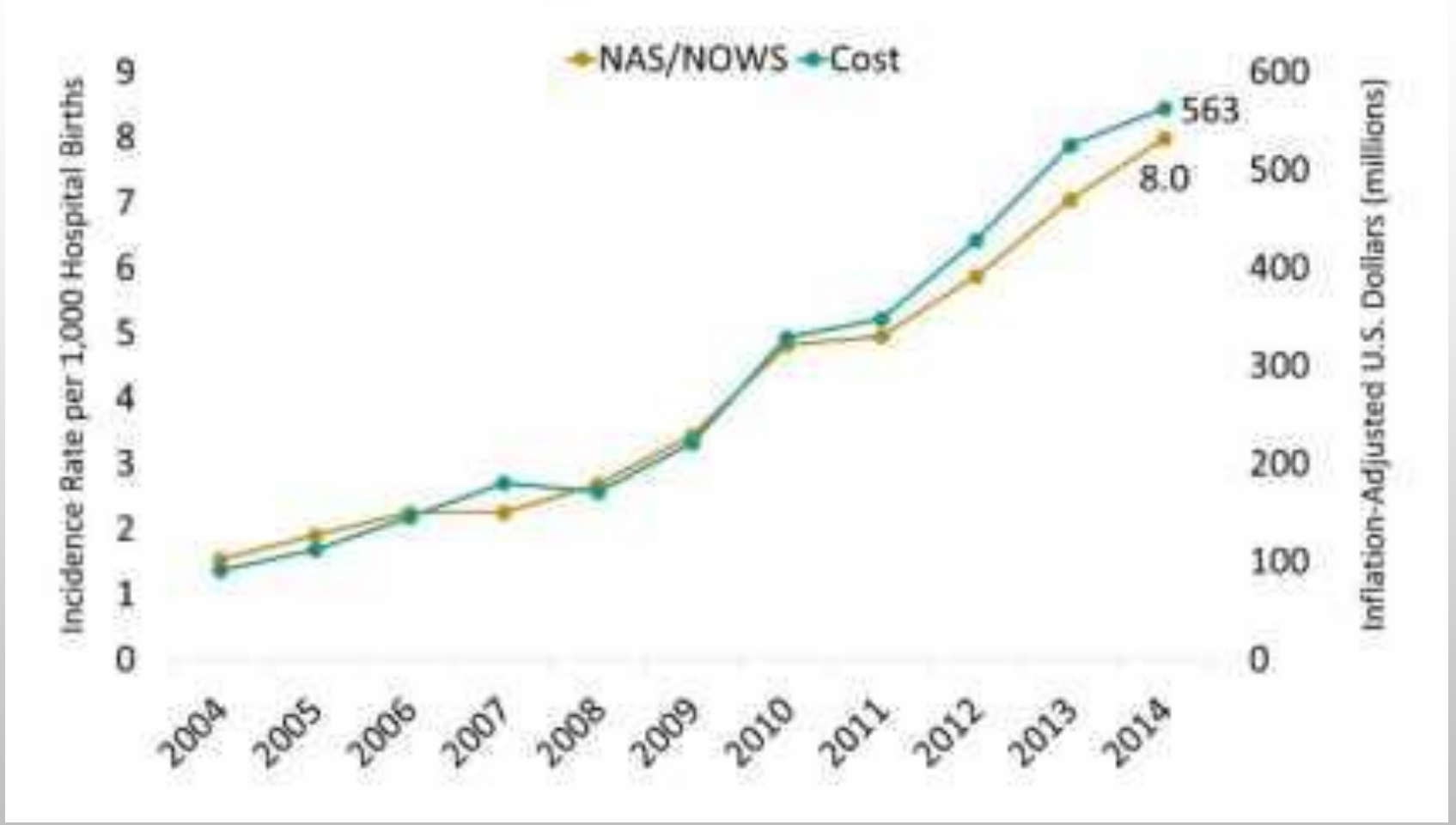
U.S. and PA opioid prescribing rate per 100 persons.
Source: CDC and IQVIA Xponent 2006–2017.

https://www.drugabuse.gov/opioid-summaries-by-state/pennsylvania-opioid-summary

OPIOID EPIDEMIC HAS NOT SPARED PREGNANT WOMEN AND THEIR INFANTS

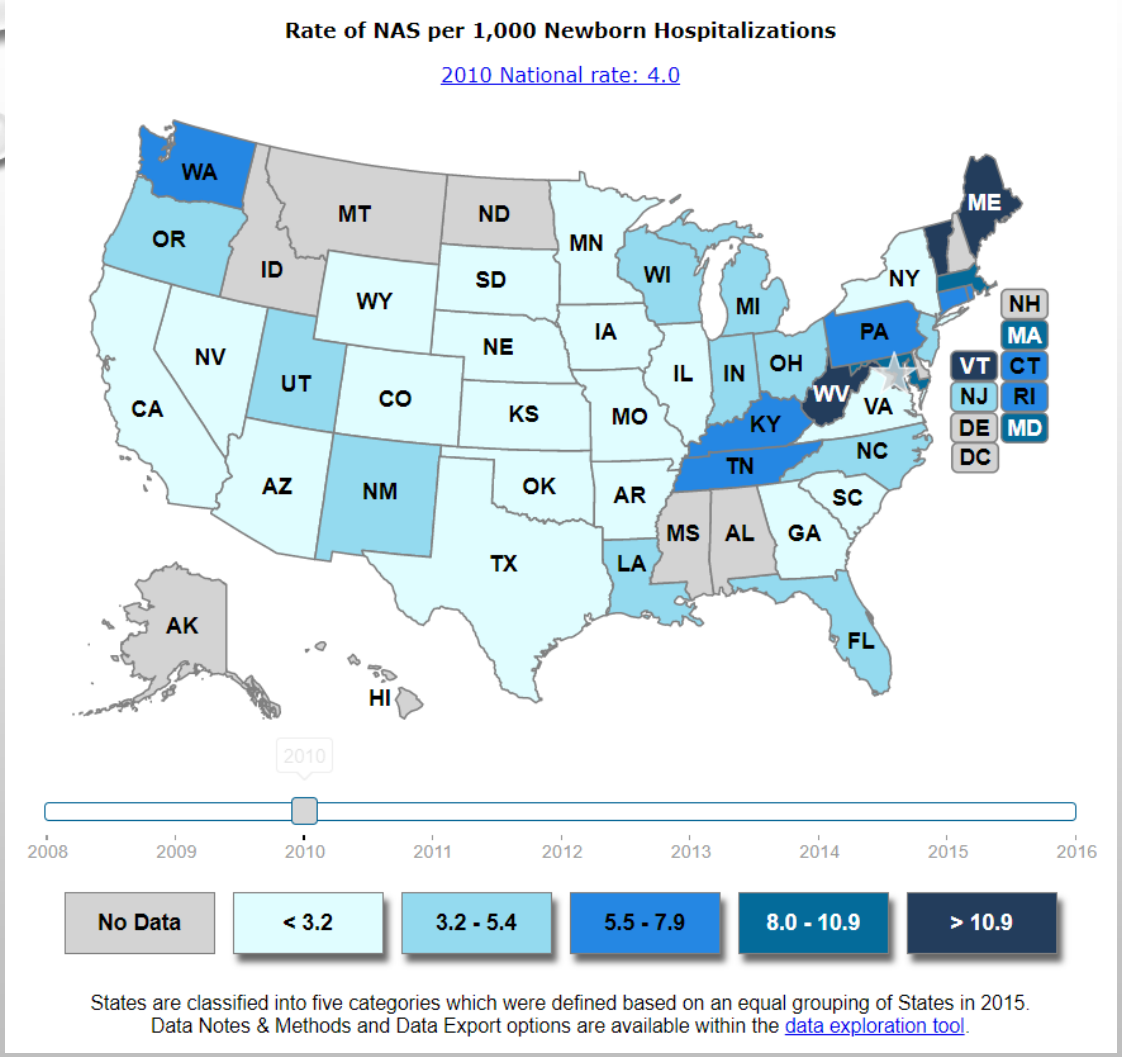
Police: Newborn Baby On Life Support After Mother, Just Out Of Prison, Overdoses On Heroin
Child's Mother And Father Both Facing Charges

U.S. NAS/NOWS RATE INCREASES

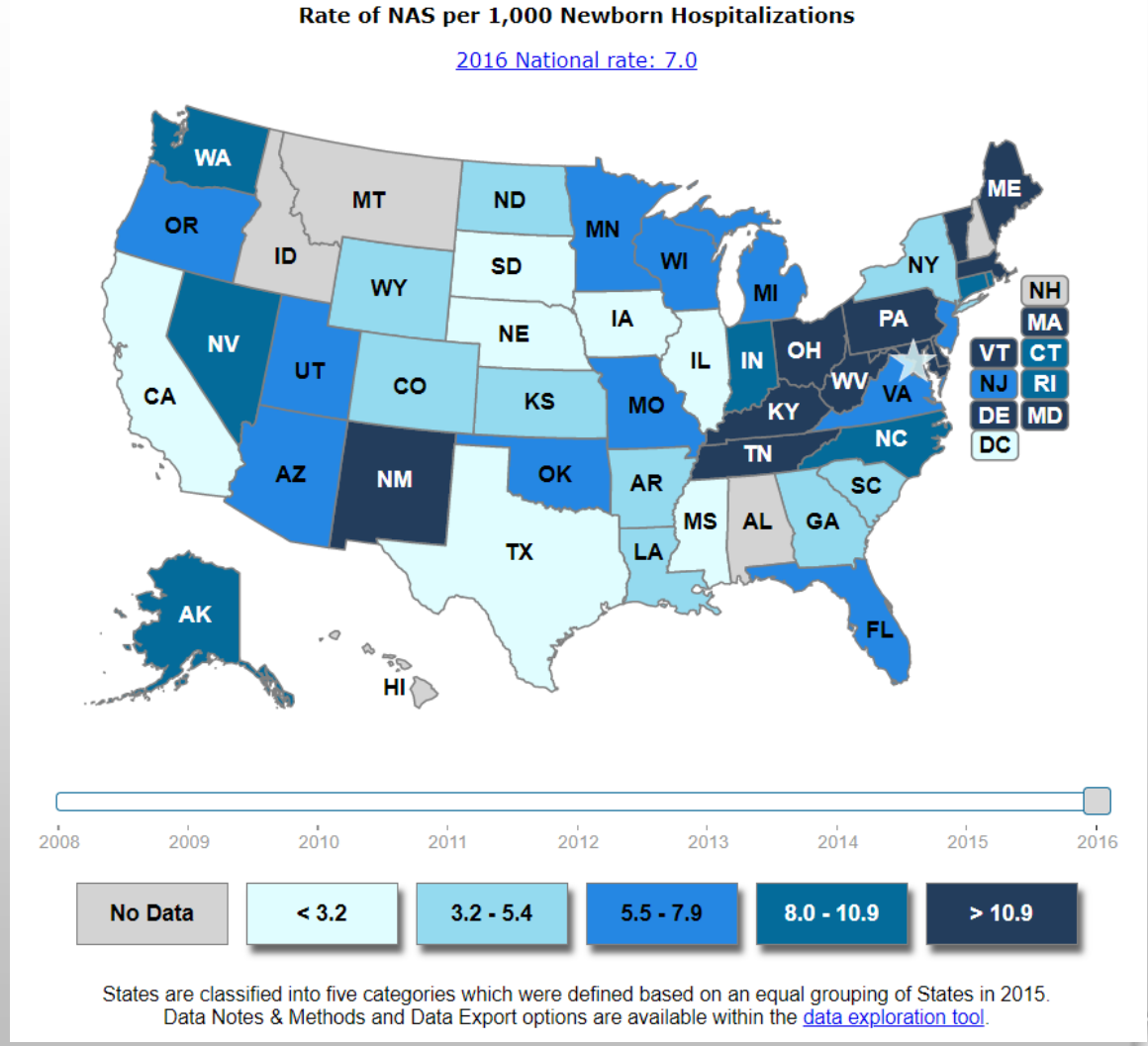


NAS/NOWS Incidence rate and hospital costs for treatment in US Source: T.N.A. Winkelman, et al., 2018.

2010

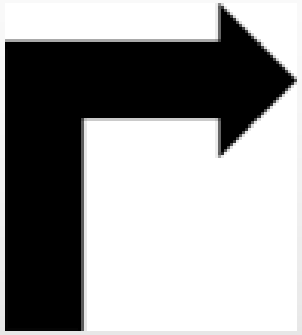


2016



https://www.hcup-us.ahrq.gov/faststats/NASMap

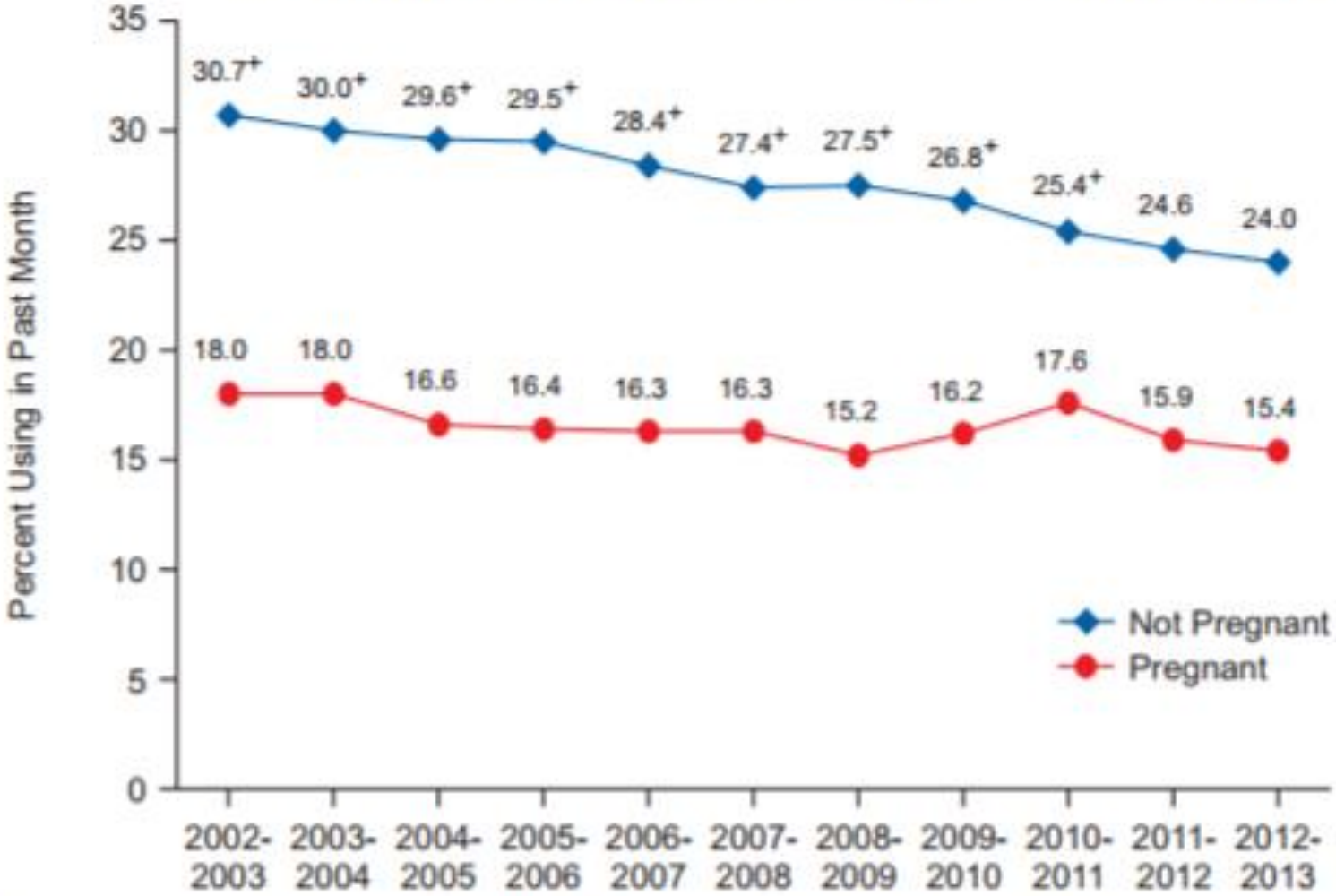
PA 00/01 to 16/7: 1.2 to 15/1,000 hosp births (PA Health Care Cost Containment Council)




Motivation


coming
soon

Figure 4.5 Past Month Cigarette Use among Women Aged 15 to 44, by Pregnancy Status: Combined Years 2002-2003 to 2012-2013



+ Difference between this estimate and the 2012-2013 estimate is statistically significant at the .05 level.

NSDUH 2011-12: Past month alcohol use, women 15-44 years

	Pregnant %	**Not Pregnant** %
Current alcohol use	10.6	55
Binge drinking	4.5*	24
Heavy drinking	0.8	5.5
Estimates based on data averaged over 2007 and 2008.		

* 10.3% REPORTED 1ST TRIMESTER BINGE DRINKING

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NEONATAL ABSTINENCE SYNDROME (NAS)
NEONATAL OPIOID WITHDRAWAL SYNDROME (NOWS)

AAP: "NAS is a clinical diagnosis, and a consequence of the abrupt discontinuation of chronic fetal exposure to substances that were used or abused by the mother during pregnancy. NAS is a generalized multisystem disorder, which predominantly involves the central and autonomic nervous systems, as well as the gastrointestinal tract."

- Chronic exposure to medication (most commonly opioids) develop physiologic dependence
- With cut of placenta - abrupt opioid cessation – develop withdrawal
- **Babies are drug dependent, not drug addicted**

SIGNS/SYMPTOMS OF NOWS

- Central Nervous System Disturbances
  - High-pitched cry, sleep disturbance, hyperactive Moro-reflex, tremors, excoriations, myoclonic jerks, generalized convulsions
- Metabolic/Vasomotor
  - Sweating, fever, frequent yawning, mottling
- Respiratory Disturbances
  - Nasal stuffiness, high respiratory rate
- Gastro-intestinal Disturbances
  - Excessive sucking, poor feeding, vomiting, loose stools

OPIOIDS

	Half life
• Natural	
○ morphine	2 -3 hrs
○ codeine	2 -3 hrs
• Semisynthetic	
○ hydromorphone	2 -3 hrs
○ oxycodone (OxyContin)	3- 4.5 hrs
○ heroin	< 10 min
• Synthetic	
○ fentanyl	2 -4 hrs (oral)
○ meperidine (Demerol)	2.5-4 hrs
○ buprenorphine (Subutex)	20-70 hrs
○ methadone	36-55 hrs

GOALS OF OUD TREATMENT IN PREGNANCY

- ↓ harmful opioid and other drug use
- ↓ spread of blood-borne diseases, deaths, ↓ crime
- **Facilitate improvement in social functioning**
- **Prevent drug related harms in pregnant women and their babies**
- **Assist establishment of maternal-child bonding**
- **Improve infant health and development**

COMMON CO-EXISTING CONDITIONS WITH OUD

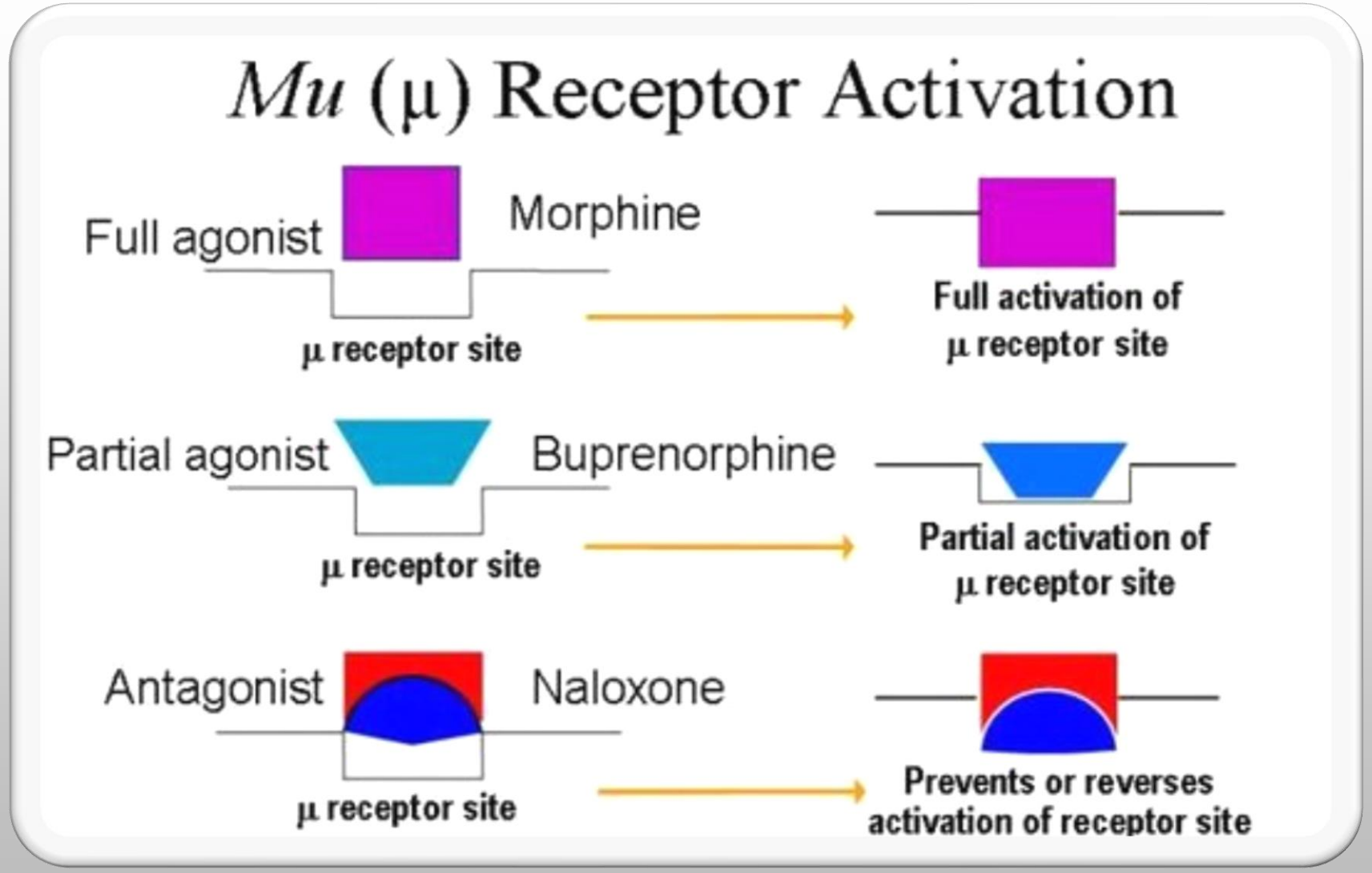
- Behavioral health issues
  - Trauma
  - Depression
  - Anxiety
  - ADHD
- Infectious diseases
  - Hepatitis C
  - Hepatitis B
  - HIV
  - STIs

OUD TREATMENT OPTIONS

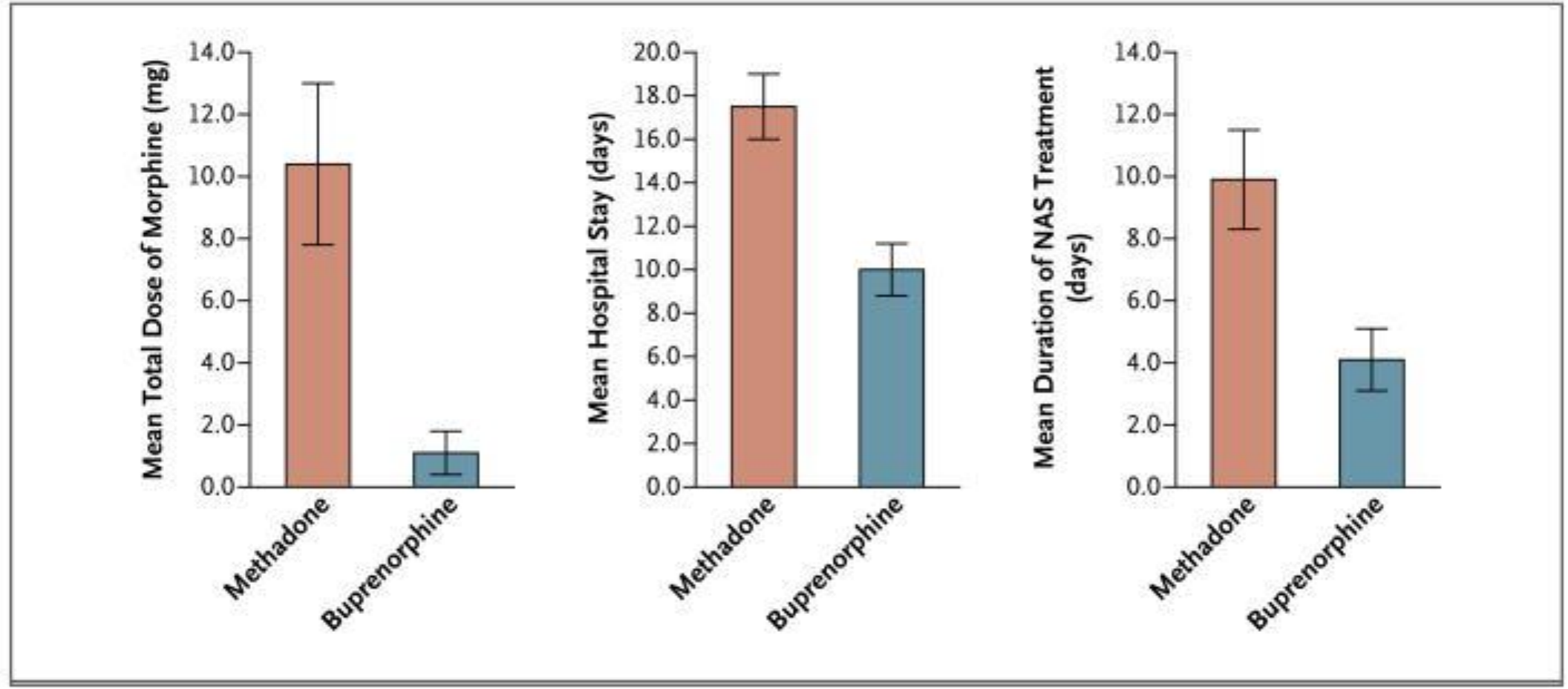
- Detoxification: high rates of relapse in pregnancy
- Methadone (liquid)
  - Mu opioid agonist
  - Dispensed through treatment programs, daily
- Buprenorphine (sublingual tablet)
  - Partial opioid agonist/antagonist
  - Lower risk of overdose
  - Prescribed by doctors w/ training – less stigma

OUD TREATMENT OPTIONS CONT.

- Naltrexone (Vivitrol brand name) – emerging limited data in pregnancy
  - Treatment for both alcohol and opioid dependence
  - Mu opioid antagonist
  - 7-10 days off opioids before starting
  - Vivitrol monthly Injectable / long acting
  - Not addictive / no dependences
- **NALTREXONE CONTRAINDICATED IN PATIENTS**
  - Receiving opioid analgesics
  - Current physiologic opioid dependence
  - In acute opioid withdrawal
  - Who failed naloxone challenge test or have a urine screen + for opioids


Mu (μ) Receptor Activation
Full agonist
Morphine
μ receptor site
Full activation of μ receptor site
Partial agonist
Buprenorphine
μ receptor site
Partial activation of μ receptor site
Antagonist
Naloxone
μ receptor site
Prevents or reverses activation of receptor site

METHADONE VS. BUPRENORPHINE (MOTHERS STUDY)



Jones et al NEJM 2010 December 9; 363(24): 2320–2331.

REVIEW OF LITERATURE
HE JONES ET AL, 2012 ADDICTION

- 3 RCT (2 small, 1 large) and 44 non-randomized studies, 28 with independent samples
- Results
  - Mat treatment with BUP comparable efficacy to MTD
  - BUP less impact on fetal behavior than MTD
  - BUP clinically less severe NAS than MTD
  - BUP and MTD compatible with breastfeeding
  - Limited data - no deleterious effects of in utero BUP exposure on infant development

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TREATMENT FOR NOWS

1. Supportive Care… supportive care… supportive care
2. Medication – last resort
3. Nutrition

1. SUPPORTIVE CARE

- Start at birth and throughout hospitalization and after
- Skin-to-skin care (Kangaroo Mother Care)
- Dimly lit, quiet, decrease sensory stimulation
- 5 S's (swaddle, side lie, sway, shush, suck)
- Massage?
- White noise?
- Soft sheets/sheepskin to prevent/minimize excoriation
- Careful diaper care – prevent / treat diaper rash

2. MEDICATION

- 2012 AAP: Neonatal Drug Withdrawal
  - Morphine (Most common, dose q3-4h)
  - Methadone (Recent RCT – pending pub)
  - Clonidine – alone or in conjunction
  - Buprenorphine
  - Phenobarbital
  - Inconclusive data with multi-pharmacy

MOTHER/PARENT 1ST LINE TREATMENT FOR NOWS: EMERGING MODEL OF CARE

- Dartmouth QI experience (Holmes et al. Pediatrics 2016:137(6))
  - ↓ proportion of infants treated for NAS: 46 to 27%
  - ↓ use of phenobarbital: 13% to 2%
  - ↓ average LOS for morphine treated newborns: 16.9 to 12.3 days
  - ↓ av. hospital costs/treated baby $19,737 to $8755; at-risk: $11 000 to $5300
  - No adverse events, and 30-day readmission rates remained stable
- Parents presence at bedside alone, after adjusting for BF, associated with shorter LOS and treatment rate
- New model associated with more breastmilk feeding

Grossman, M. R., et al. (2017). "An Initiative to Improve the Quality of Care of Infants With Neonatal Abstinence Syndrome." Pediatrics.

EAT-SLEEP-CONSOLE

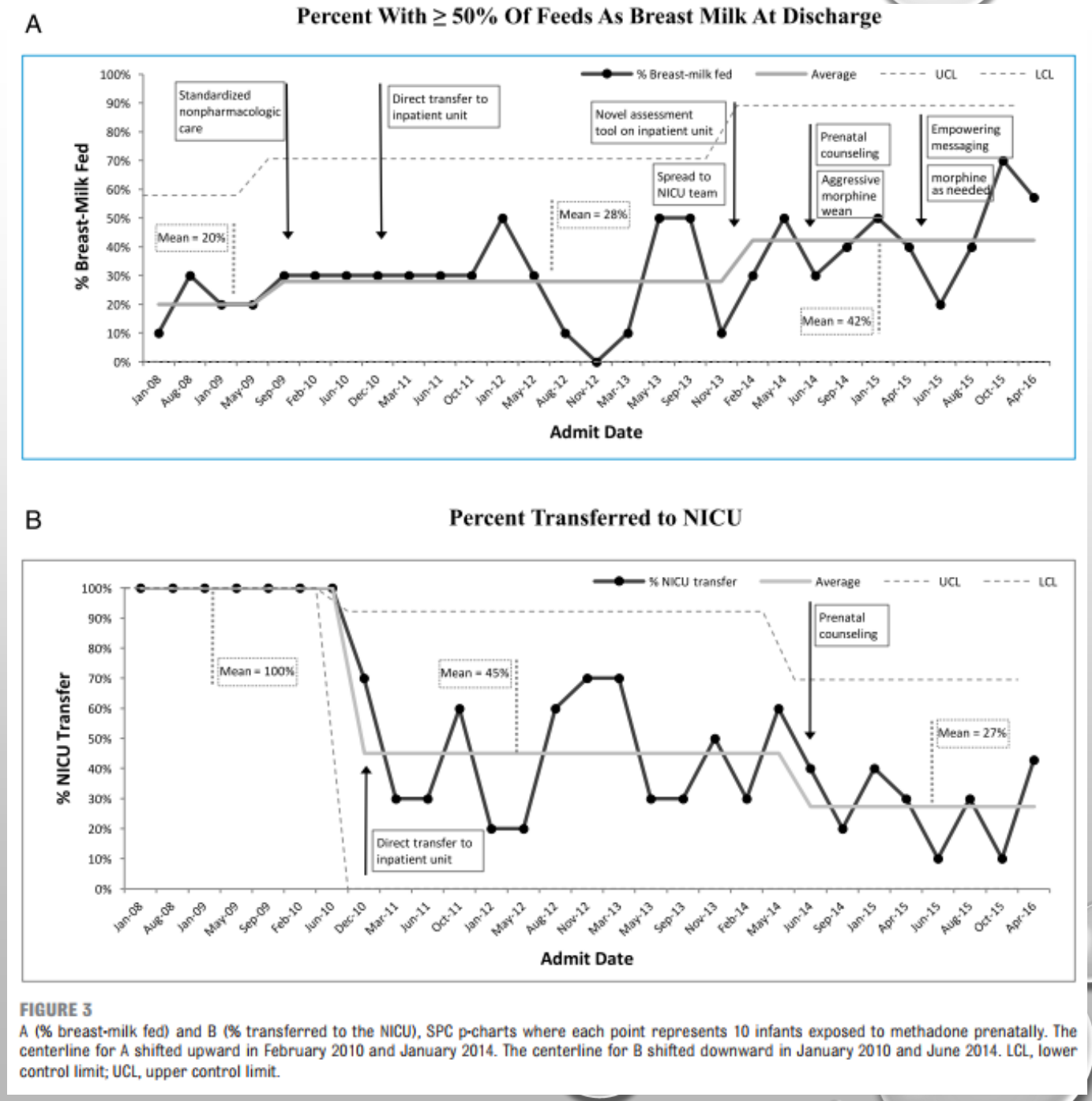

FIGURE 3

A (% breast-milk fed) and B (% transferred to the NICU), SPC p-charts where each point represents 10 infants exposed to methadone prenatally. The centerline for A shifted upward in February 2010 and January 2014. The centerline for B shifted downward in January 2010 and June 2014. LCL, lower control limit; UCL, upper control limit.

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BENEFITS OF BREASTFEEDING FOR EVERYONE

- **For infants**
  - ASTHMA
  - OBESITY
  - TYPE 2 DIABETES
  - EAR AND LOWER RESPIRATORY INFECTIONS
  - SIDS
- **Attachment**
- **Skin-to-Skin**

- **For mothers**
  - High blood pressure
  - Type 2 diabetes
  - Ovarian and breast cancer
- **Society**
  - Less waste – green!
  - Free
  - Huge health care savings

https://www.cdc.gov/breastfeeding/about-breastfeeding/why-it-matters.html

BREASTFEEDING FOR BABY WITH NOWS

- Consistent Literature findings – breastfeeding associated with …
  - Less severe opioid withdrawal symptoms
  - Shorter hospital stays
  - Less likely to be treated with medication for withdrawal symptoms
- Mechanism for improved outcomes?
  - Frequent small feedings
  - Breastmilk is more easily digested
  - Skin to skin contact
  - Small amount of methadone in breastmilk
- ? May also support longer drug free time for mother ?

DO WOMEN WITH OUD BREASTFEED?

BOSTON MEDICAL CENTER – REVISED GUIDELINE

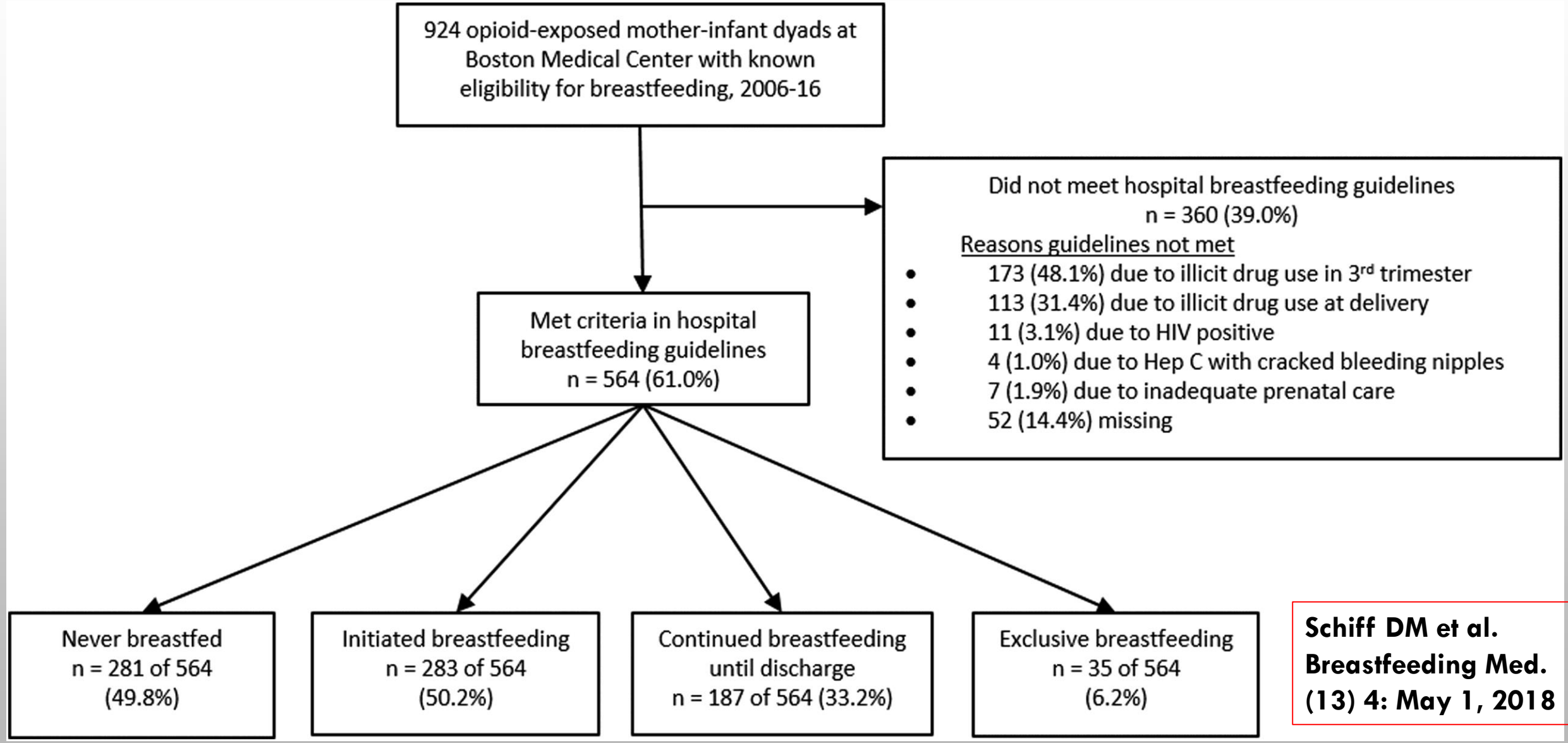
- Aims of guidelines are to:
  - Safely promote BF in all mothers with OUD who are in recovery
  - Improve NAS outcomes by use of BF as key nonpharmacologic treatment
  - Improve staff communication and consistency on subject of BF
- Expanded on ABM criteria by
  - Defined consistent prenatal care as attendance of at least 50 % of scheduled visits, including 2 visits within last 2 months
  - "4-week guideline" of no positive urine drug screens for BF initiation

Wachman, E.M.. *Revision of Breastfeeding Guidelines in the Setting of Maternal Opioid Use Disorder: One Institution's Experience. J Hum Lact, 2016. 32(2): p. 382-7.*

Period	Participating in addiction Rx program	Prenatal care requirements	U-tox : # wks NO + test before delivery	BF eligibility guidelines and institution BF improvements
01/06–12/09	Yes	None	12	2006 1st Written BF Guidelines
01/10–12/12	Yes	≥12 weeks before delivery, ≤2 missed visits	10	2010 Revised Written BF Guidelines 2010 Brochure - Benefits of BF in OUD – devel. + distributed in prenatal clinic
01/13–03/15	Yes	≥12 weeks before delivery, no more than two missed visits	10	2013 NAS QI Comm. formed; statewide QI collaborative started 2013–14 NAS QIC focus - std monitoring of NAS infants and early pharm Rx 2015 NAS QIC reviewed BF guidelines
04/15–12/16	Yes	Attendance at ≥50% or ≥5 prenatal visits	4	April 2015 revised BF guidelines; Started active face-to-face prenatal BF education 2015 NAS QIC focus: (1) skin-to-skin, (2) rooming-in, (3) lactation support, after mothers d/c, but infant still admitted.

Schiff DM et al. Breastfeeding Med. Vol 13 Issue 4: May 1, 2018

EXPERIENCE AT BOSTON MEDICAL CENTER (BABY FRIENDLY) 2006-16



Schiff DM et al. Breastfeeding Med. (13) 4: May 1, 2018

FIG 2. Trends in breastfeeding eligibility, initiation, and continuation among 924 opioid-exposed mother-infant dyads, Jan 2006–Dec 2016.

2016 Nat'l Rate
81% Initiation
44% Exclusive
at 3 mos

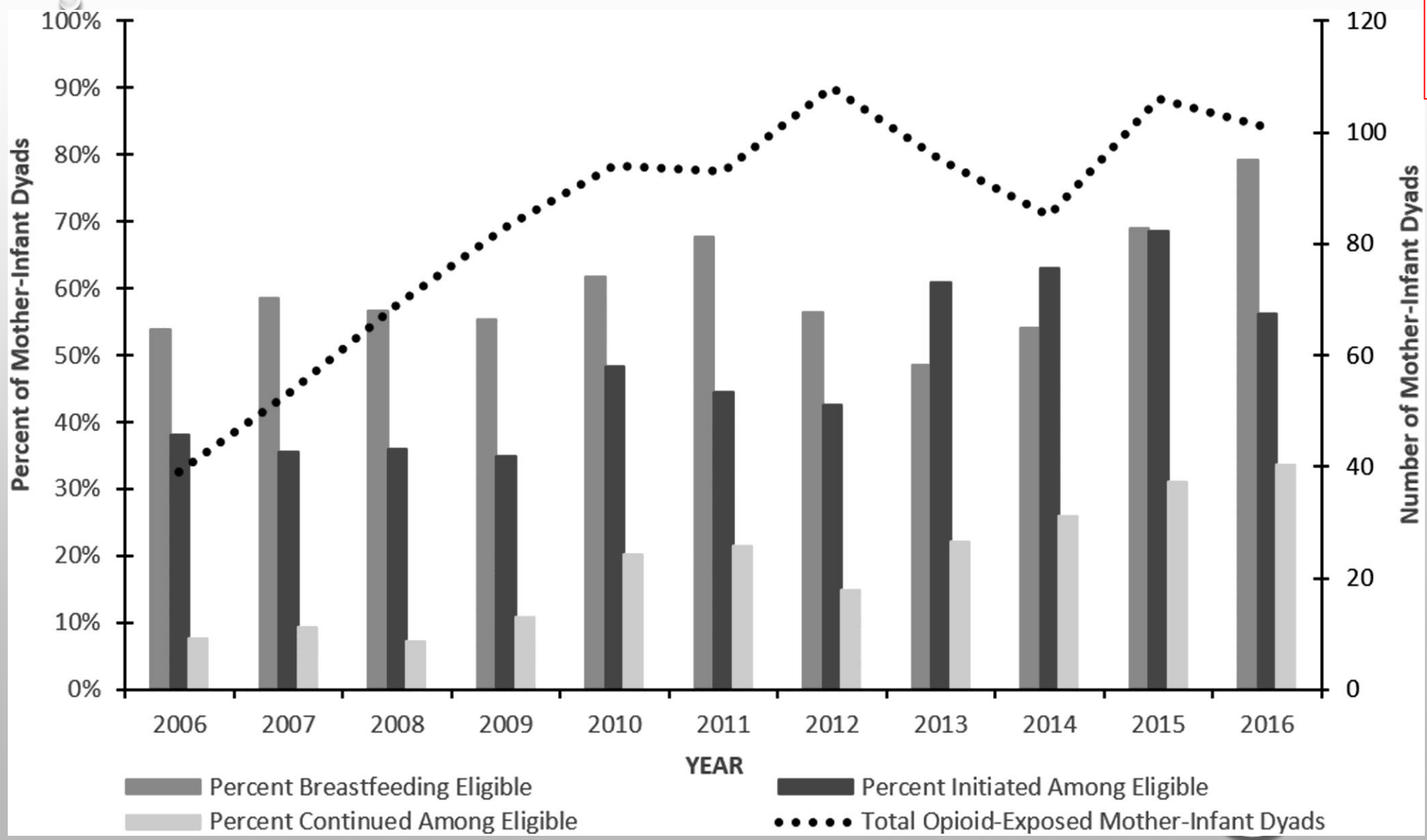


Table 3. Associations of Hospital Delivery Year, and Maternal and Infant Characteristics with Breastfeeding Initiation and Continuation Among Eligible Mother-Infant Dyads at Boston Medical Center 2006–2016

	Initiated breastfeeding			*Continued to discharge*		
	Unadjusted OR Model 1 (95% CI)	*aOR Model 2[a](95% CI)*	*aOR Model 3[b](95% CI)*	*Unadjusted OR Model 1 (95% CI)*	*aOR Model 2[a] (95% CI)*	*aOR Model 3[b] (95% CI)*
Hospital characteristics, delivery year as proxy						
Period 1 (01/2006–12/2009)	**Ref.**	**n/a**	**Ref.**	**Ref.**	**n/a**	**Ref.**
Period 2 (01/2010–12/2012)	**1.47 (0.93–2.33)**	**n/a**	**1.15 (0.70–1.91)**	**2.50 (1.21–5.17)[c]**	**n/a**	**2.20 (0.94–5.13)**
Period 3 (01/2013–03/2015)	**3.09 (1.82–5.23)[c]**	**n/a**	**2.84 (1.61–5.02)[c]**	**3.61 (1.64–7.93)[c]**	**n/a**	**3.11 (1.29–7.55)[c]**
Period 4 (04/2015–12/2016)	**2.83 (1.74–4.61)[c]**	**n/a**	**2.60 (1.51–4.50)[c]**	**1.25 (0.64–2.43)**	**n/a**	**1.38 (0.58–3.29)**

Adjusted models

- Reducing restrictions in hospital BF guidelines and prenatal BF education
- Increased odds of any breast milk vs infants born with earlier hospital policies

- Cesarean vs. vag delivery: aOR 0.3 [95% CI 0.2–0.6] &
- Length of infant hosp: aOR 0.94 [95% CI 0.92–0.97] negatively associated with BF continuation

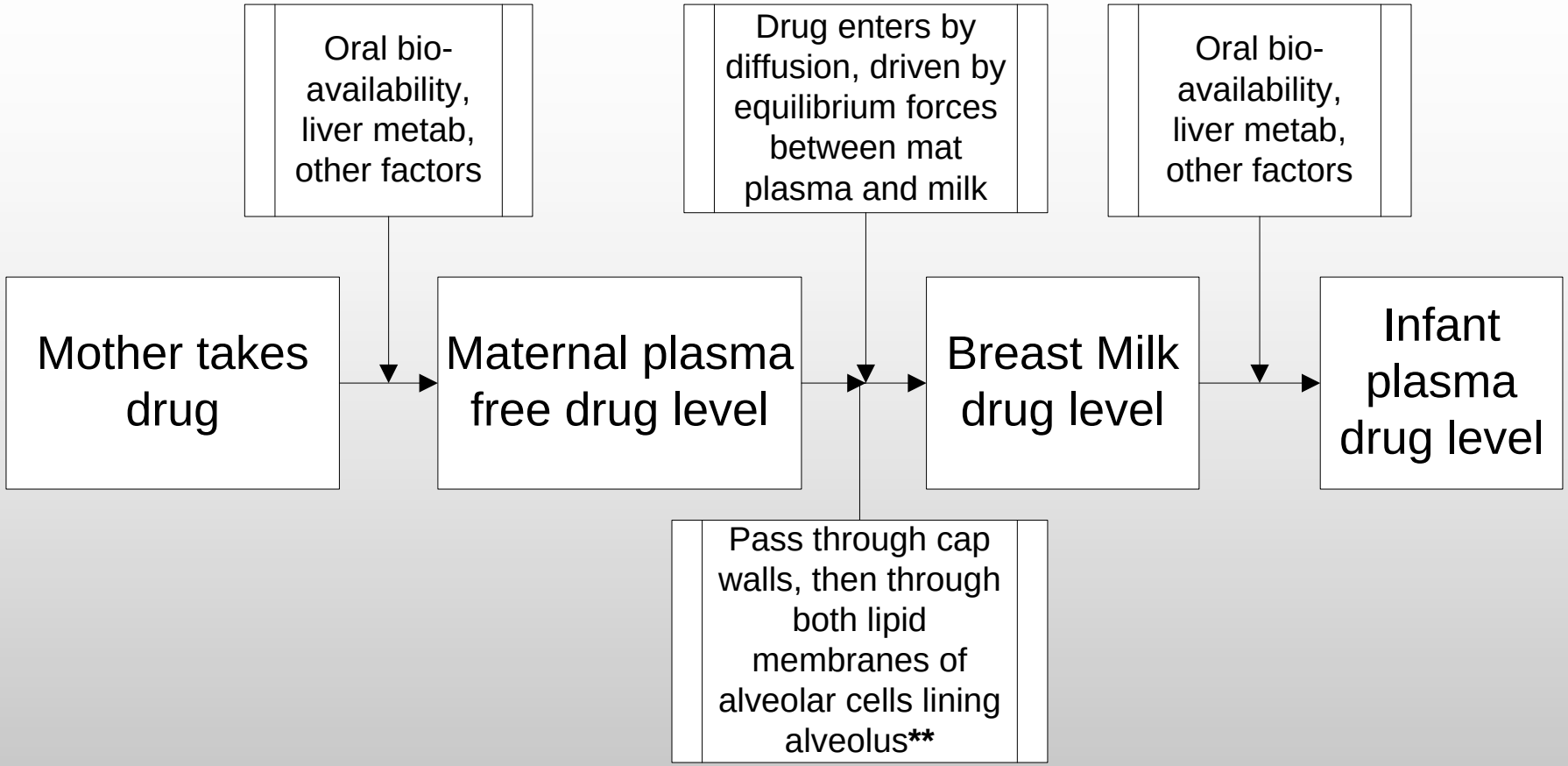
ABM CLINICAL PROTOCOL #21: GUIDELINES FOR BF AND DRUG-DEPENDENT WOMAN (REVISED 2015)

www.bfmed.org (free BF protocols)

- **Recommend BF**
  - Individualize Plan –
  - In treatment program and consent to communicate
    - Confirm with counselors treatment adherence
    - Confirm with mother plan for continued care after delivery
  - 90 days drug free
  - UDS negative at delivery
  - Received prenatal care

- **Recommend NOT BF**
  - Limited or late prenatal care
  - Relapsed < 30 days before delivery
  - Not willing to engage in treatment and/or give consent for communication among providers
  - Urine Drug Screen positive at delivery
  - No plan for postpartum treatment
  - Behaviors or other indicators of active illicit use

Transfer of drugs from mother to infant via breast milk



** first 72 hours, can pass between alveolar cells becuase large gaps exist. By end of 1st week, alveolar cells swell under influence of prolactin, thus preventing trnscellular entry of drugs and proteins into milk

ESTIMATE INFANT MTD EXPOSURE VIA MILK

N=20	R MTD	S MTD	Total MTD
M/P ratio	0.52	0.28	0.40
Range	.05 – 1.3	.02 - .68	.04 - 1.0
TID mg/kg/day	.020	.013	.033
Range	.004-.099	.002-.071	.006-.169
RID %	2.7	1.6	2.1
Range	.66 –10.1	.02 – .7.2	.52 – 8.7

M/P = milk/plasma ratio; TID = theoretic infant dose;
RID = relative infant dose

Bogen. BREASTFEEDING MEDICINE Vol 6, 2011

TRANSFER INTO BREASTMILK

METHADONE

- AAP Recommendations
  - 1994 not if dose>20 mg/day
  - 2001removed from contraindicated list (Retired)
- LactMed 1-3% RID, occasionally 5-6%
- OK even at high maternal dose – no clear association between mat. dose and breastmilk concentration
- Caution if starting methadone postpartum while woman is nursing!!
  - Infant naïve to long-acting opioid can have respiratory arrest

BUPRENORPHINE

- Poor oral bio-availability
  - Given as sublingual tablet or film
- Low drug concentrations in serum and urine of breastfed infants
- Low RID (<1%)

3. NUTRITION AND NOWS

- Baby with NOWS difficult to feed because…
  - Disorganized
  - Rapid state changes
  - Abnormal suck-swallow patterns
  - Increased tone
  - Excess stool
- Track weight carefully
- Excessive weight loss common (weight nadir larger/later and later return to Birth weight)
- Consider additional calories

PLAN NOW: PI DR. LIZ KRANS

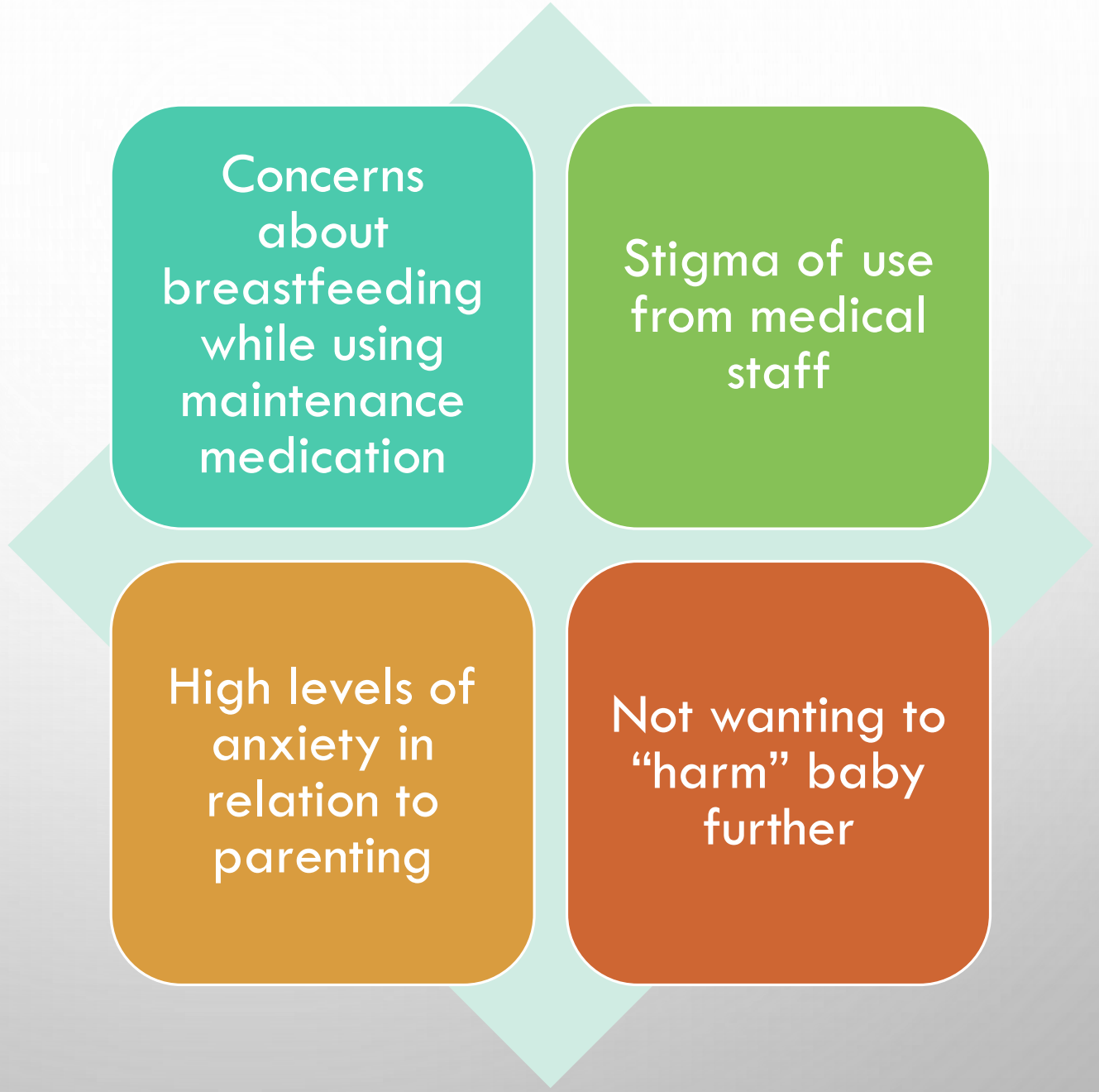
- Two arm open label trial - compares immediate postpartum Nexplanon placement vs. usual postpartum contraceptive care
- Recruitment: UPMC Magee-Women's Hospital
- Main study findings not yet published
- 20 participants completed qualitative interviews about their views on breastfeeding and donor breast milk
- Plan NOW team: Elizabeth Krans, Laird Hollis, Leah Klocke, Debra Bogen

INTEREST IN BREASTFEEDING

- While pregnant, 85% (17/20) expressed desire to breastfeed
  - At time of interview, only 25% (5/20) women were breastfeeding
  - 40% (8/20) women reported that they were unable to reach goals
- Women who stopped breastfeeding reported
  - Perceived lack of support
  - Difficulties getting baby to latch
  - Being too much work
  - Difficulties with feeding and pumping while baby is in NICU
    - Common concerns for all mothers

“I HAD A HARD TIME WHEN I WASN’T VERY SUCCESSFUL [BREASTFEEDING]… I WAS FEELING DOWN ON MYSELF, LIKE BECAUSE I COULDN’T PRODUCE ENOUGH AND I DON’T KNOW…”

PERCEIVED OBSTACLES FOR WOMEN WITH OUD WITH BREASTFEEDING



DETERRENTS TO BREASTFEEDING

- Maternal Hepatitis C infection
- Maintenance medication
  - Not being told it would be okay to breastfeed while on MAT
  - Feeling guilty and not wanting baby to continue to get drug through breastmilk
- Too much work
- Painful
- Guilt if unable to produce enough milk

PERCEIVED BENEFITS OF BREASTMILK OVER FORMULA

- Breastfeeding allowed for bonding
- Nutrients
- Antibodies
- Better for digestion
- Helps babies to grow smarter and healthier
- Calmer
- Better attachment

CLINICAL TIPS FOR SUCCESSFUL BREASTFEEDING

- Prenatal education
- Early and often skin-to-skin
- Plenty of emotional and latch support
- If/when baby disorganized and frantic
  - Swaddle in a blanket
  - Get milk flow started for baby (hand expression/massage/pump)
  - Breast massage during feeding to maintain flow
  - Use nipple shield

SLEEP ISSUES COMMON

- Common complaint of all parents (20-30%)
  - Association with maternal depression
- Ongoing complaint in outpatient setting
- Increased risk of SUID among substance exposed infants *
- Opioids impact sleep architecture

* Ward, S. L., et al. (1990). "Sudden infant death syndrome IN INFANTS OF SUBSTANCE-ABUSING MOTHERS." JOURNAL OF PEDIATRICS **117(6): 876-881.**

SLEEP INTERVENTIONS

- Post sleep interventions, mothers (parents) consistently showed
  - Rapid and dramatic improvements in their overall mental health status
  - Fewer symptoms of depression
  - Increased sense of parenting efficacy
  - Enhanced marital satisfaction
  - Reduced parenting stress

* Mindell, J. A., et al. (2006). "Behavioral treatment of bedtime problems and night wakings in infants and young children." Sleep 29(10): 1263-76.

SLEEP STRATEGIES

- Emphasize safe sleep – baby in own bed – flat on back
  - No co-bedding, no couches, no recliners
- Harvey Karp: *Happiest Baby on the Block*
  - Posits 4th trimester (first 3 months of life)
  - Teach parents to trigger "calming reflex" by mimicking uterine environment
- *5* S's (gradually add one at a time)
  - Swaddle - Side lie – Shush - Sway - Suck
- Sleep strategies (Mindell Review 2006)
  - Preventive: bedtime routine, consistent schedule, parental handling and parental response to awakening - put to bed "drowsy but awake"
  - Graduated extinction (not Ferber) – starting at 3-4 months (low maternal tolerance for crying)

DURATION OF SYMPTOMS

- Issues persists for 6-12 months
  - Skin mottling
  - Exaggerated reflexes
  - Sleep issues
  - Digestive complaints
  - Cry and fuss
- Parenting challenging in healthy infant
  - More challenging than usual
  - Help parents with resources for themselves and infants

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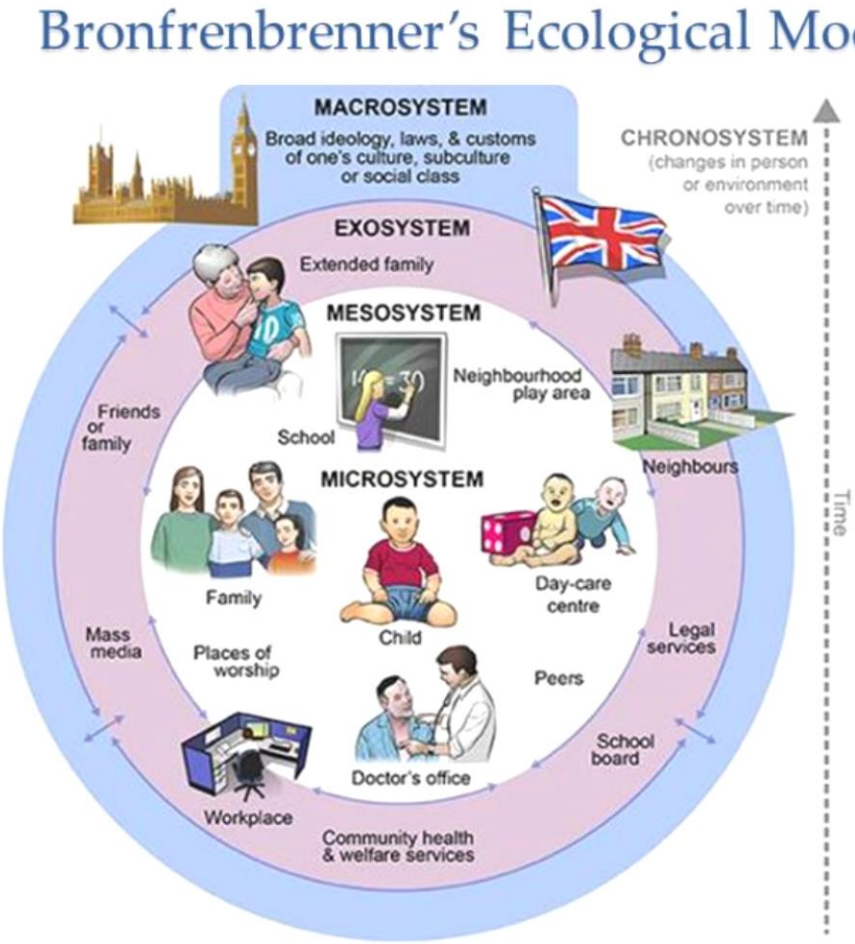
STUDYING FETAL DRUG EXPOSURE

- Challenging because…
  - Women may not disclose use
  - Multiple drug exposures
  - Exposure varies across pregnancy
  - Impact of pre-pregnancy exposure
  - Child outcomes impacted by many factors - not just drug exposure



(King's College London, Florence Nightingale School of Nursing and Midwifery n.d.)

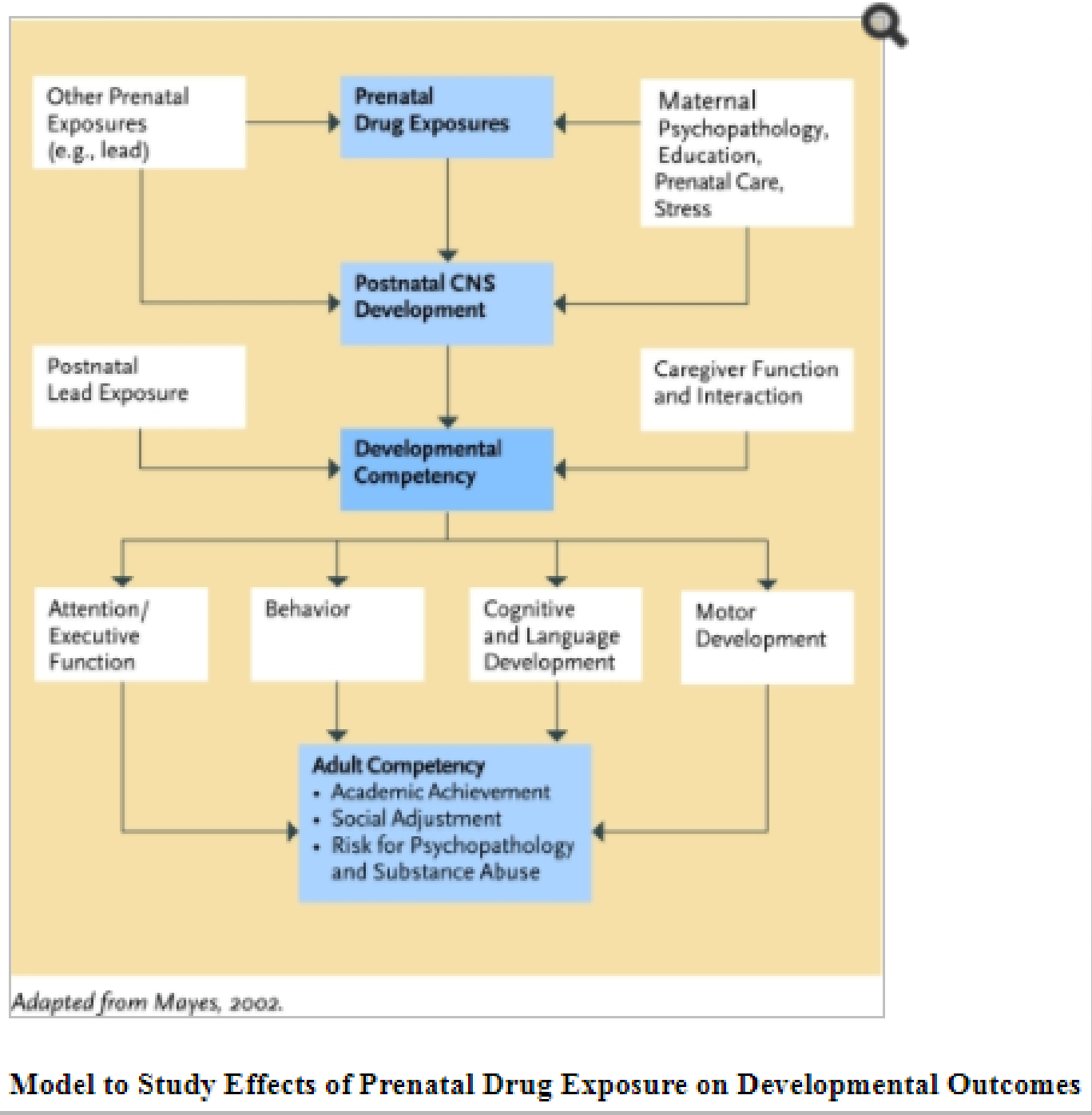
Behavior Teratology Framework

- Vulnerability of CNS to injury extends beyond fetal, neonatal, and infancy stage
- Most frequent manifestations of injury to developing CNS do not result in nervous system malformations but in functional abnormalities that may not be detected at birth but later in childhood, adolescence, or adulthood

LITERATURE REVIEW: EFFECTS OF PRENATAL SUBSTANCE EXPOSURE ON INFANT AND EARLY CHILDHOOD OUTCOMES

- National Abandoned Infants Assistance Resource Center; Univ CA at Berkeley
  - https://secure.goozmo.com/user_files/5967.pdf
- Minnes et al. Addict Sci Clin Pract 2011 Jul; 6(1): 57-70
  - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3188826/
- Most data on cocaine exposure

Minnes s, Lang A, Singer S. Addict Sci Clin Pract 2011 Jul; 6(1): 57–70. Prenatal Tobacco, Marijuana, Stimulant, and Opiate Exposure: Outcomes and Practice Implications



Model to Study Effects of Prenatal Drug Exposure on Developmental Outcomes

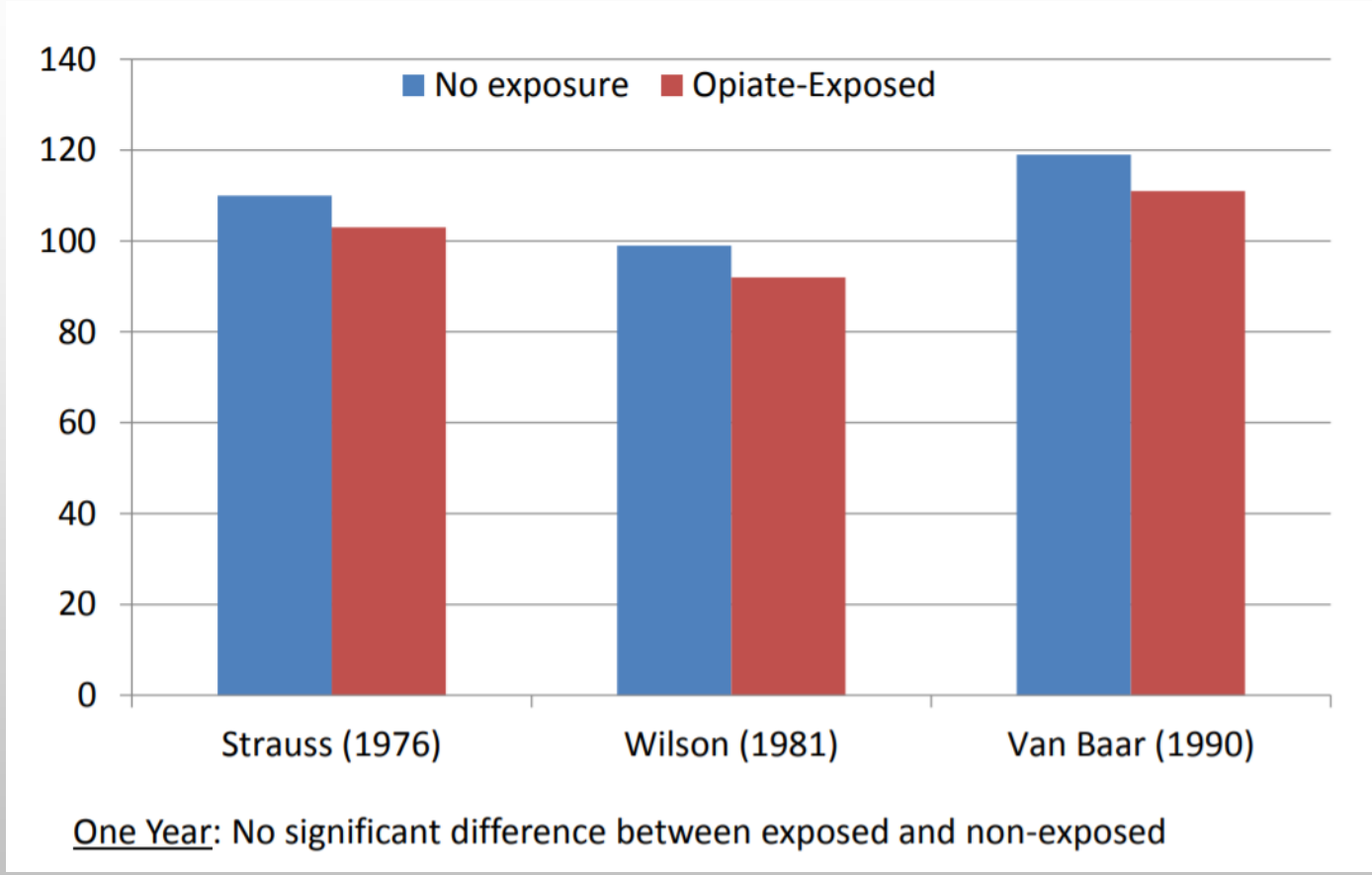
TABLE 2: PRENATAL DRUG EXPOSURE: POTENTIAL EFFECTS ON **BIRTH AND PREGNANCY OUTCOMES**

TOBACCO	MARIJUANA	STIMULANTS	HEROIN/OPIOIDS
Pregnancy complications	No fetal growth effects	**Cocaine**	Stillbirth
Prematurity	No physical abnormalities	Prematurity	Prematurity
↓ birth weight		↓ birth weight	↓ birth weight
↓ birth length		↓ birth length	↓ birth length
↓ birth head circumference		↓ birth head circumference	↓ birth head circumference
Sudden infant death syndrome (SIDS)		Intraventricular hemorrhage	Fetal and neonatal abstinence syndrome
↑ infant mortality rate		**Methamphetamine**	Sudden infant death syndrome (SIDS)
Minnes et al. Addict Sci Clin Pract 2011 Jul; 6(1): 57-70		Small for gestational age	
		Decreased birth weight	

TABLE 3: PRENATAL DRUG EXPOSURE: POTENTIAL EFFECTS ON **CENTRAL NERVOUS SYSTEM DEVELOPMENT, COGNITIVE FUNCTION, AND BEHAVIOR**

TOBACCO	MARIJUANA	STIMULANTS	OPIATES
• Disturbed maternal-infant interaction • Excitability • Hypertonia • Stress abstinence signs • Conduct disorder • Reduced IQ • Aggression • Antisocial behavior • Impulsivity • ADHD • Tobacco use and dependence	• Mild withdrawal symptoms • Delayed state regulation • Reading, spelling difficulty • Executive function impairment • Early tobacco and marijuana use	**Cocaine** <u>Neonatal/Infancy</u> • Early neurobehavioral deficits: Orientation, state regulation, autonomic stability, attention, sensory and motor asymmetry, jitteriness • Poor clarity of infant cues during feeding interaction • Delayed information processing • General cognitive delay <u>Childhood</u> • Lower nonverbal perceptual reasoning • Lower weight for height • Lower weight curve trajectories • Attention problems • Disruptive behaviors by self-report and caregiver report	• Neonatal abstinence syndrome • Less rhythmic swallowing • Strabismus • Possible delay in general cognitive function • Anxiety • Aggression • Feelings of rejection • Disruptive/ inattentive behavior

MENTAL DEVELOPMENTAL INDEX AT 1 YEAR



Strauss ME, Ostrea EM, Stryker, JC: J Pediatr 1976; 89 (5): 842-846. (n=113; 53/113 "addicted")

Wilson GS, Desmond MM, Wait RB: J Pediatr 1981; 98(5): 716-22. (n=125; no Rx=29; methadone Rx=39; controls=57)

Van Baar A: J Child Psychol Psychiat 1990; 31(6): 911-920. (35 mixed exp; 37 no expo

NEONATAL ABSTINENCE SYNDROME AND HIGH SCHOOL PERFORMANCE

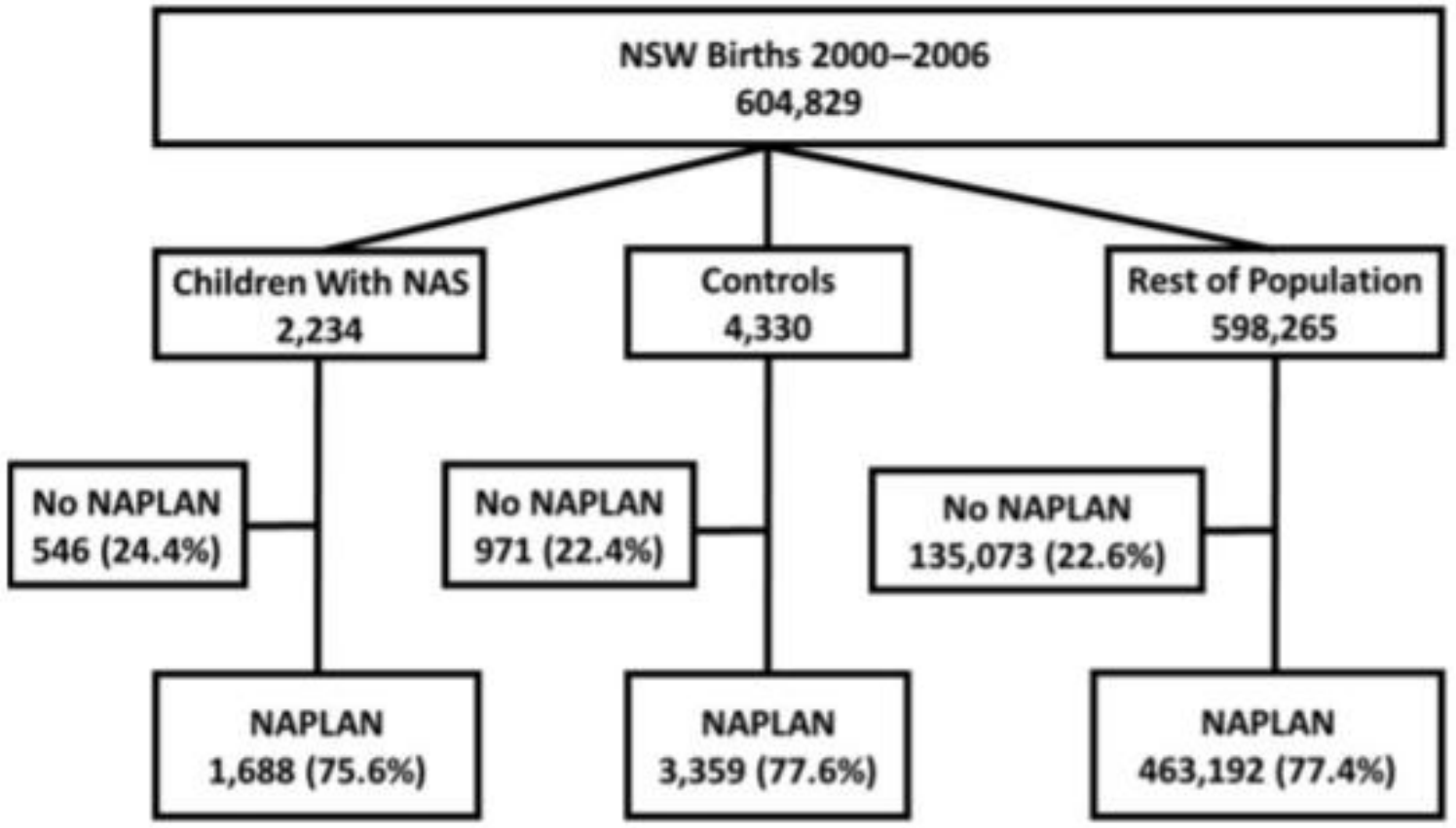


FIGURE 1
Linkage rates between children with NAS, control, and rest of NSW population to NAPLAN results.

Major Study Limitations

- Control group not really comparable
- Definition of NAS

Oei JL; Pediatrics 2017 Feb;139(2)

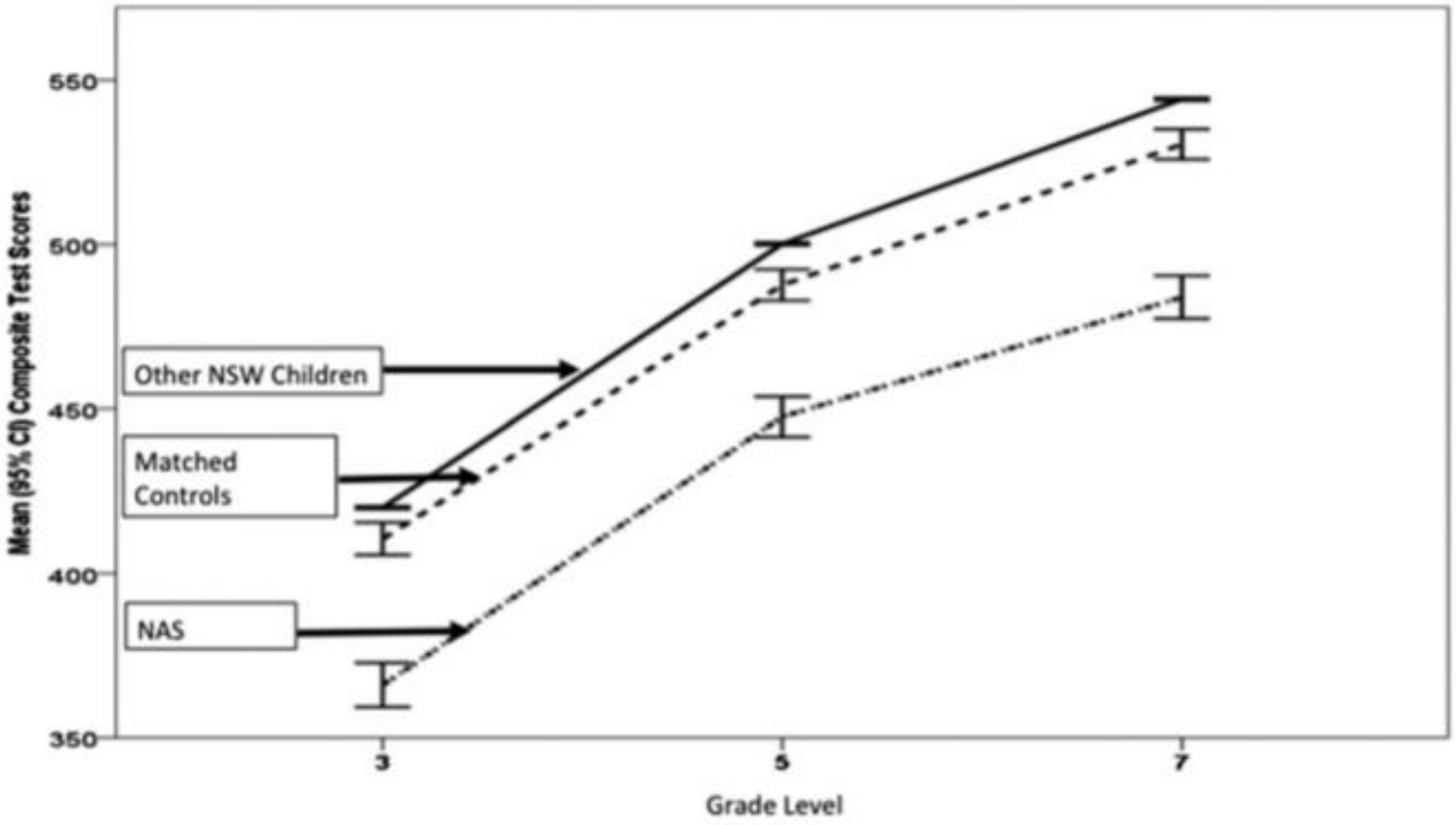


FIGURE 2
Composite NAPLAN test scores between children with NAS, control, and other NSW children.

OUTLINE

1. Review current opioid use in pregnancy
2. Define NOWS and reviews its presentation
3. Treatment for NOWS in hospital
4. Breastfeeding for NOWS impacted infants?
5. Behavior and Development Outcomes
6. **Outpatient / Follow-up needs**

"WHAT IS LONG TERM IMPACT OF MY DRUG USE ON MY BABY?"

- Literature suggests home environment can overcome prenatal exposure
- Stay drug free so can attend to baby's needs
- Provide child with stimulating environment
  - Develop secure attachment
  - Talk to baby, make good eye contact, provide consistent care
  - Read to baby, avoid TV as babysitter
  - Learn age appropriate parenting skills
- Methadone (watch for eye issues)

RECOMMENDED POST-HOSPITAL MANAGEMENT

- Support Breastfeeding – start discussion in pregnancy
- Counsel on SUIDS risk: Back to sleep; no smoke exposure; no co-bed
- Monitor weight, development and sleep issues
- Referral to Early Intervention before discharge (f/u as outpt)
- Refer to community-based programs to support parenting
  - Home visiting programs
  - Family support centers
- Provide **family support** to prevent relapse and optimize maternal, child and family health and wellness … and attachment

PARENTING AND SUD

- Among child victims of maltreatment, 43-79% >at least 1 parent with SUD
- Mothers with SUD 2-3x more likely to maltreat children or lose custody
- Children experience recurring episodes of loss of consistent parental care (during relapse and other interruptions)
- However, SUD does not always impact parenting ….. Pregnancy great motivator!!
- Attachment theory basis for successful programs

ADDRESS PARENTING TO IMPROVE OUTCOMES

- Integrate effective parenting strategies into SU treatment programs
- Incorporate into EI services
- Incorporate into Home Visiting Programs
- Pediatric providers facilitate and reinforce skills
- Video Interaction Project (example)
  - Provide toy or book that is age appropriate
  - Discuss age appropriate play
  - Video tape mother/father playing with toy/book with infants/child
  - Watch video with mother/father – and notice positive interactions and age appropriate behavior
  - Parents take sheet with play ideas and video home and toy/book

TAKE HOME POINTS

- OUD is a chronic disease ….
  - No one wants diagnosis of OUD
  - Crosses all SESs
- NOWS increasing in frequency
  - Goals should be treatment for mothers (fathers) and infants together
  - In long run – will be more cost effective for society
- Treatment evolving -
- As Home visitors, you will provide care for children/families impacted by opioid epidemic