

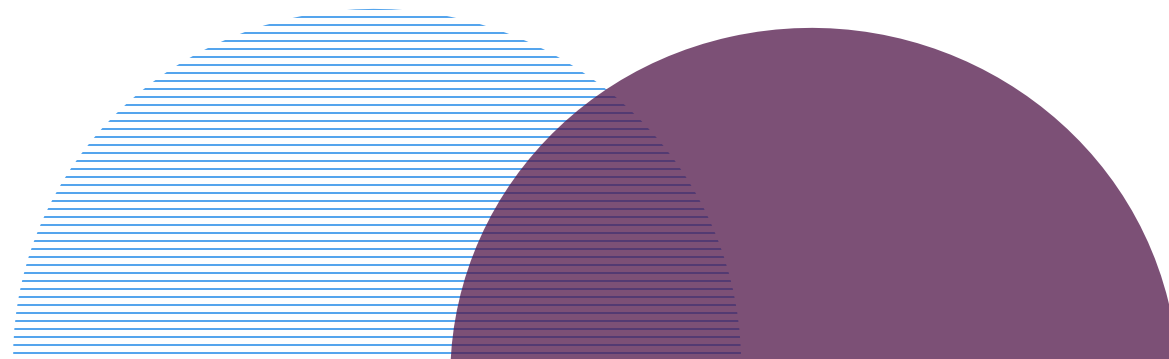
Opioid Use Disorder in Pregnancy

Neonatal Abstinence Syndrome



Opioid Use Disorder and Pregnancy Cont.

- 4.6 million women (or 3.8 percent) ages 18 and older misused prescription drugs in 2013.
 - One-third of childbearing women take prescription opioids, previously occurring in 6–7% of pregnant women.
 - Initial data suggest that recent neonatal abstinence syndrome (NAS) increases have resulted from increased use of prescription opioids rather than illicit drugs.

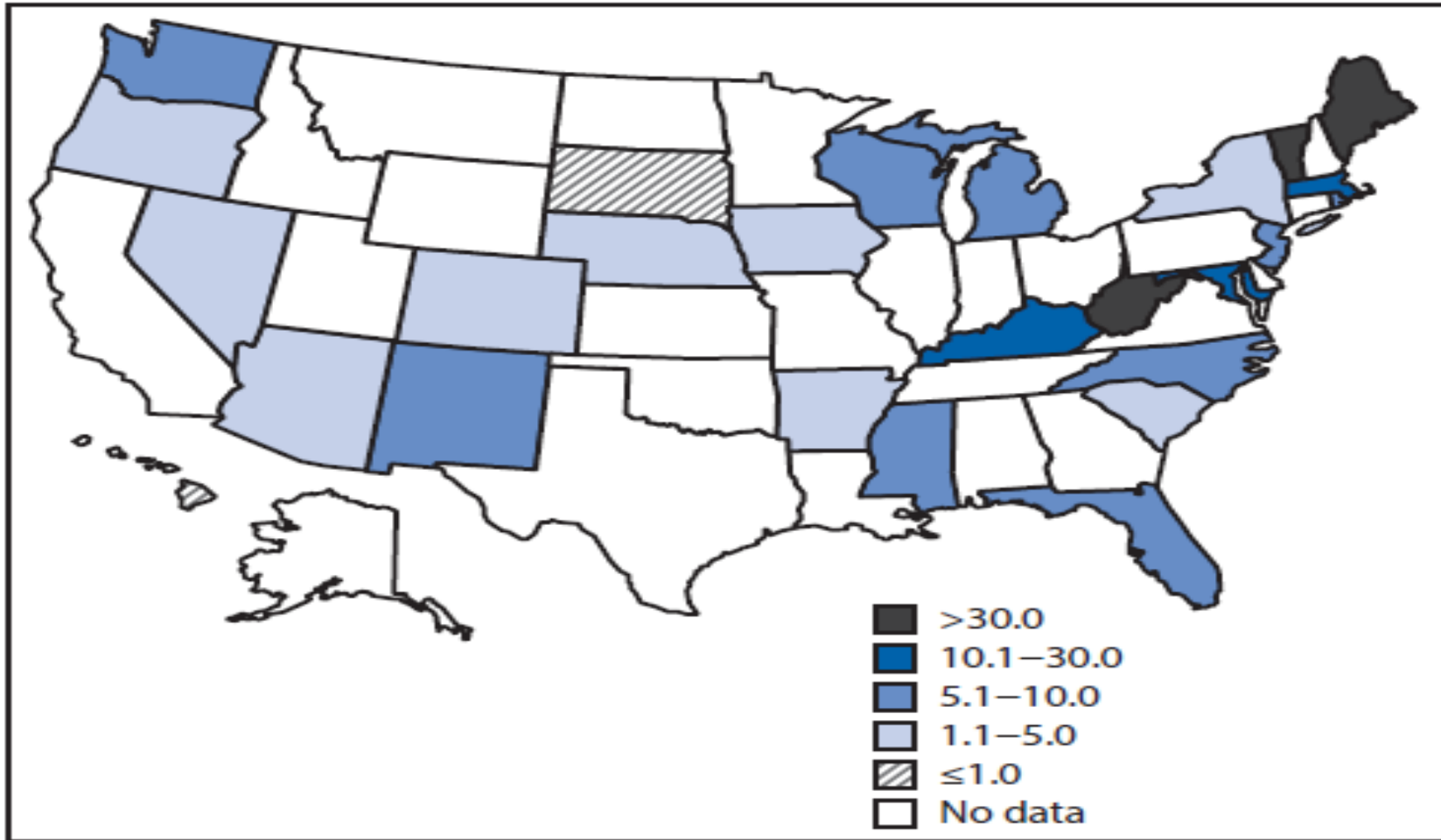


Opioid Use Disorder and Pregnancy

- Opioid use in pregnancy and the use of illicit opioids during pregnancy is associated with an increased risk of adverse outcomes.
 - NAS is a treatable and predictable condition that can occur following prenatal exposure to opioids or agonist and requires collaboration with pediatric care team.
 - Prenatal opioid exposures may cause birth defects, altered brain development and NAS.
- SAMHSA 2014. [Opioid Abuse, 2012](#) and [Anand & Campbell-Yeo, 2015](#).



FIGURE. Neonatal abstinence syndrome (NAS) incidence rate* — 25 states, 2012–2013†



Texas Medicaid NAS 2009 - 2016

2009	687
2010	736
2011	854
2012	994
2013	1,009
2014	1,132
2015	1,285
2016	1,270

Source: State Inpatient Databases, Healthcare Cost and Utilization Project.

* NAS cases per 1,000 hospital births.

† Incidence rates reported are for 2013, except for four states (Maine, Maryland, Massachusetts, and Rhode Island) for which 2013 data were not available; 2012 data are reported for these states.

Neonatal Abstinence Syndrome (NAS)

Typically refers to a withdrawal syndrome after in-utero exposure to:

- Opioids within 2-3 days of birth
- Symptoms can also occur within 1- 2 days of birth after exposure to:
 - Nicotine
 - Benzodiazepines
 - Selective serotonin reuptake inhibitors (SSRIs)

Neonatal Opioid Withdrawal Syndrome (NOWS)

Experts now recommend in-utero opioid exposure be referred to as NOWS

- More specific description of drug of exposure
- Would standardized coding and help collect more meaningful and actionable data

Prenatal Education: Preparing Mom & Other Caregivers for the Newborn Period

- **Rooming-in** together and **Parent (or other caregiver) presence** throughout baby's entire hospital stay
- **Skin-to-skin contact** as much as possible with parent/caregiver fully awake to help calm baby and promote neurobehavioral organization
- **Limiting visitors** to 1-2 at a time (and to those that will be quiet & supportive)
- **Use of cuddler program** if other caregiver not available when mom needs to leave for her MAT after she is discharged

What are the symptoms of Neonatal Abstinence Syndrome?

Neurological

- Irritability
- Increased Wakefulness
- High-Pitched Cry
- Tremor
- Increased Muscle Tone
- Hyperactive Deep Tendon Reflexes
- Frequent Yawning
- Sneezing
- Seizures

Gastrointestinal

- Vomiting
- Diarrhea
- Dehydration
- Poor Weight Gain
- Poor Feeding
- Uncoordinated and Constant Sucking

Autonomic

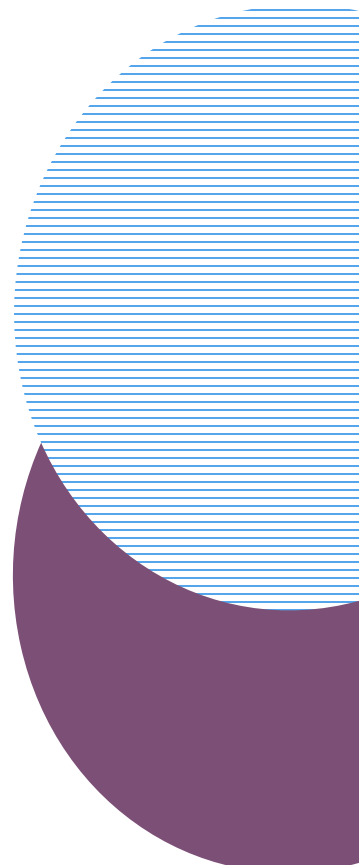
- Diaphoresis (Profuse Sweating)
- Nasal Stuffiness
- Fever
- Mottling
- Temperature Instability
- Mid Elevators in Respiratory Rate and Blood Pressure

When do symptoms appear?

Drug	Onset, hour	Frequency, %	Duration, day
Opioids			
Heroin	24–48	40–80 ²⁷	8–10
Methadone	48–72	13–94 ³⁷	Up to 30 or more
Buprenorphine	36–60	22–67 ^{46,48}	Up to 28 or more
Prescription Opioid Medications	36–72	5–20 ^{56,60}	10–30
Nonopioids			
SSRIs	24–48	20–30 ⁶⁴	2–6
TCA _s	24–48	20–50 ⁶⁴	2–6
Methamphetamines	24	2–49 ¹⁰¹	7–10
Inhalants	24–48	48 ⁷⁰	2–7

Perinatal Factor That May Affect Long-Term Outcomes

- Duration of in utero drug exposure.
- Dose-effect relationship.
- Maternal polydrug use (Legal, Other, Rx, Illegal).
- Withdrawal Symptoms vs. Drug Effects.
- Severity of withdrawal manifestations.
- Continuing drug exposure from postnatal treatment.
 - Type of drug, duration of postnatal treatment.
- Family, environmental factors.



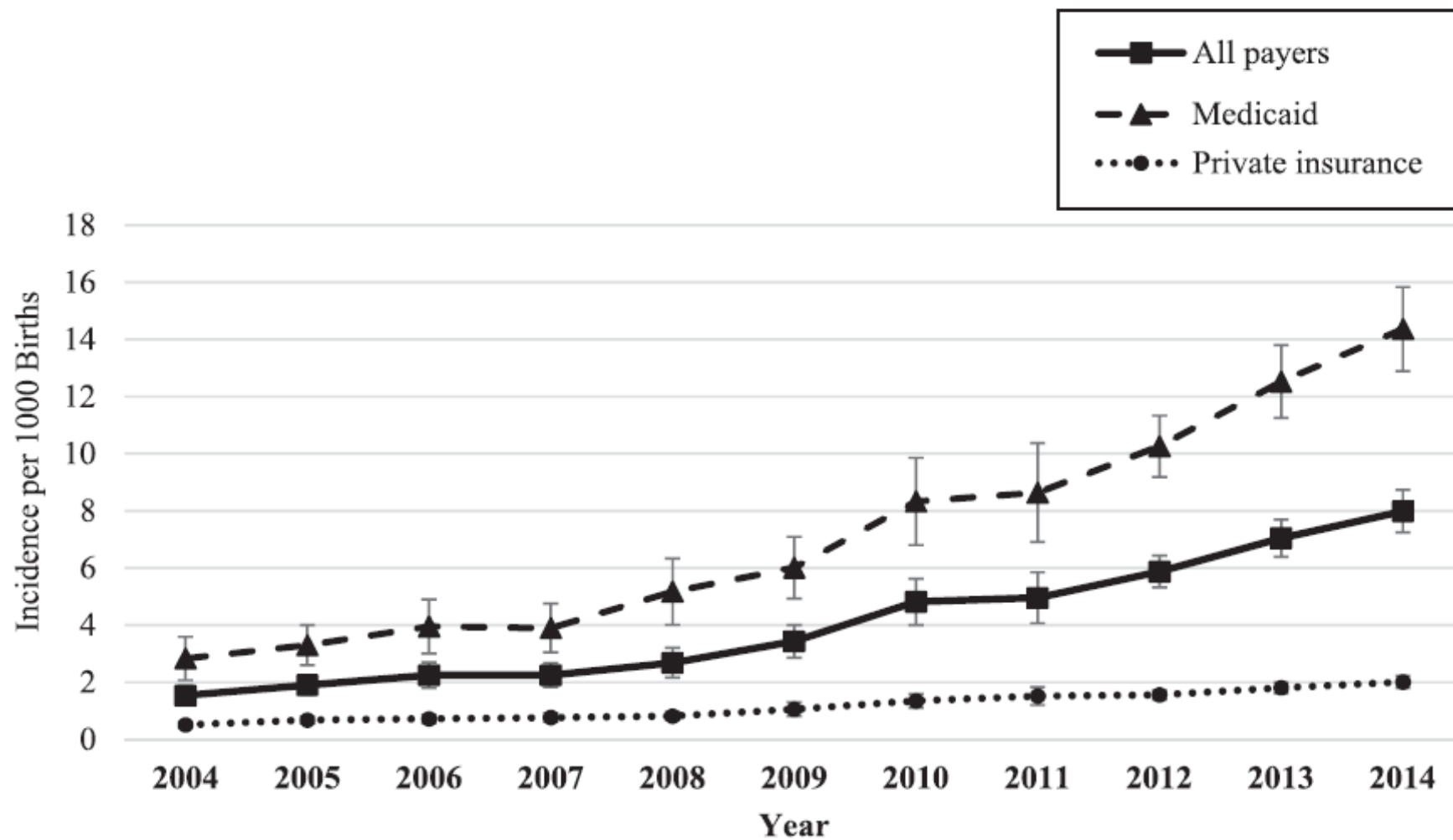
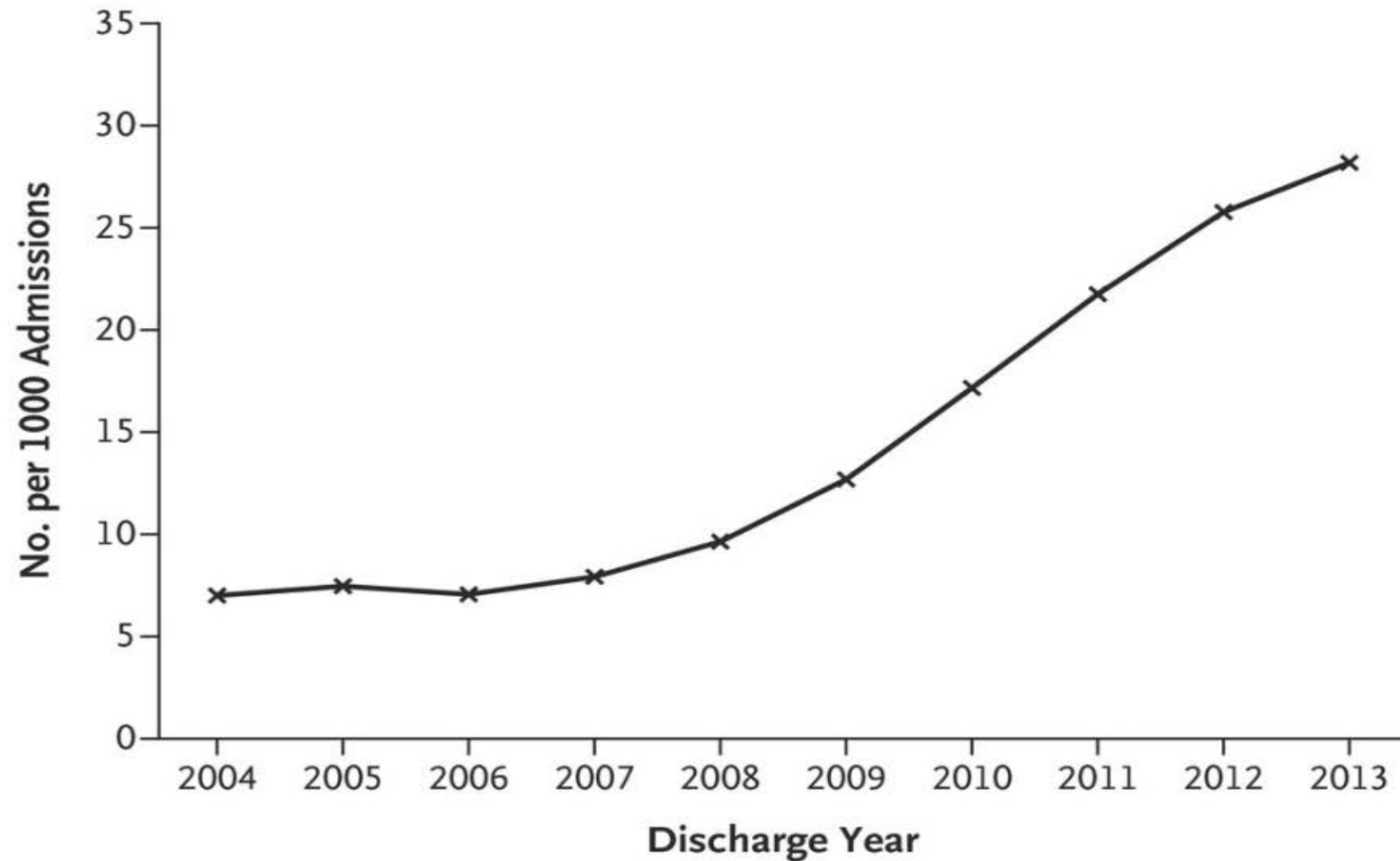


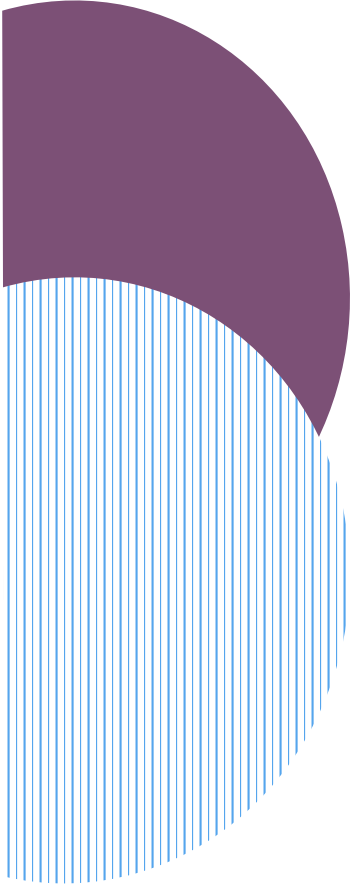
FIGURE 1
Incidence of NAS by primary payer.



A Admissions for the Neonatal Abstinence Syndrome



Hospital Protocol Recommended

- 
- Kangaroo Care
 - Skin to Skin
 - NAS Competencies
 - Rooming In
 - Visitor Rules
 - Increasing NAS Scoring
 - ED Pregnant Women
 - Harm Reduction
 - NAS Competencies
 - Screening/UDS
 - Abused Women
 - Order Sets Review
 - ED Patients
 - Triage Patients
 - Social Services Team
 - Treatment Team
 - Soothing Techniques
 - Dietary
 - Environmental

Assessment of NAS: Assessment Instruments

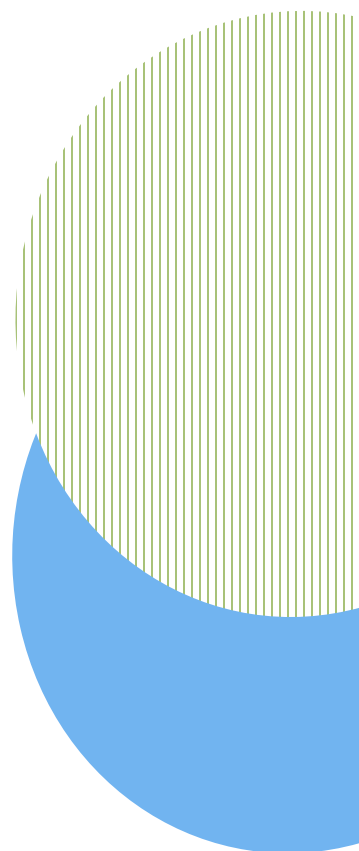
Standardized / Eat, Sleep, Console

Old Protocol

- Goal: Suppress Withdrawal Signs
- NICU: Mom Visits
- Finnegan Scores: Treat the Number
- “Supportive Care”
- “Feed on Demand”
- Morphine
- Surprise! Staff Takes Care of Infant

New Protocol

- Goal: Have Infant Function as a Normal Neonate
- Mother and Child Together
- Eat / Sleep / Console: Treat the Infant
- SUPPORTIVE CARE
- No Feeding Schedule
- Meds on Page 3
- Prenatal Preparation
- Staff Coaches Parents



*NeoQic Presentation 09/27/17:
Neonatal Abstinence Syndrome: Rethinking Our
Approach*
Matthew Grossman, M.D. Yale School of
Medicine

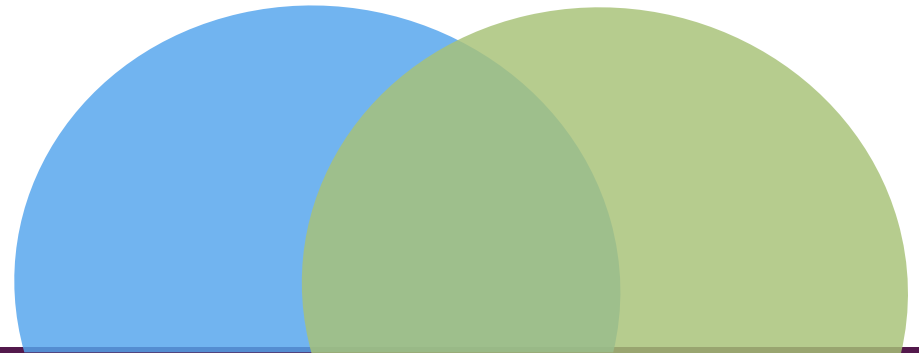
ESC Study

- Analyzed 50 consecutive NAS babies admitted to our general inpatients unit from March 2014 to August 2015.
- Assessed every 2-6 hours using the FNASS, but did not guide management.
- Management decisions based on ESC.

NeoQic Presentation 09/27/17:

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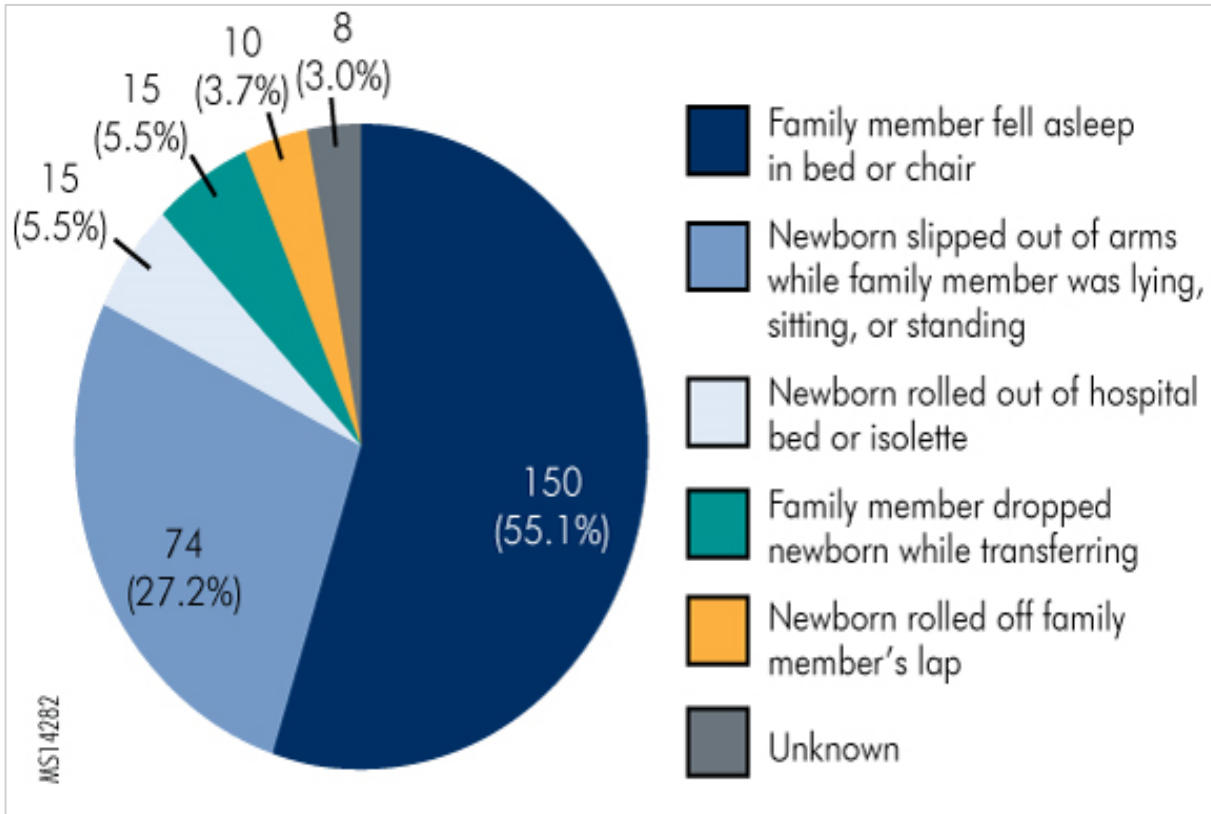
Non-Pharmacologic Interventions

- Maintaining the mother/infant dyad a crucial component
- Non-pharmacological interventions
 - Breastfeeding
 - Quiet environment
 - Dimmed lighting
 - Skin-to-skin
 - Swaddling
 - Rocking



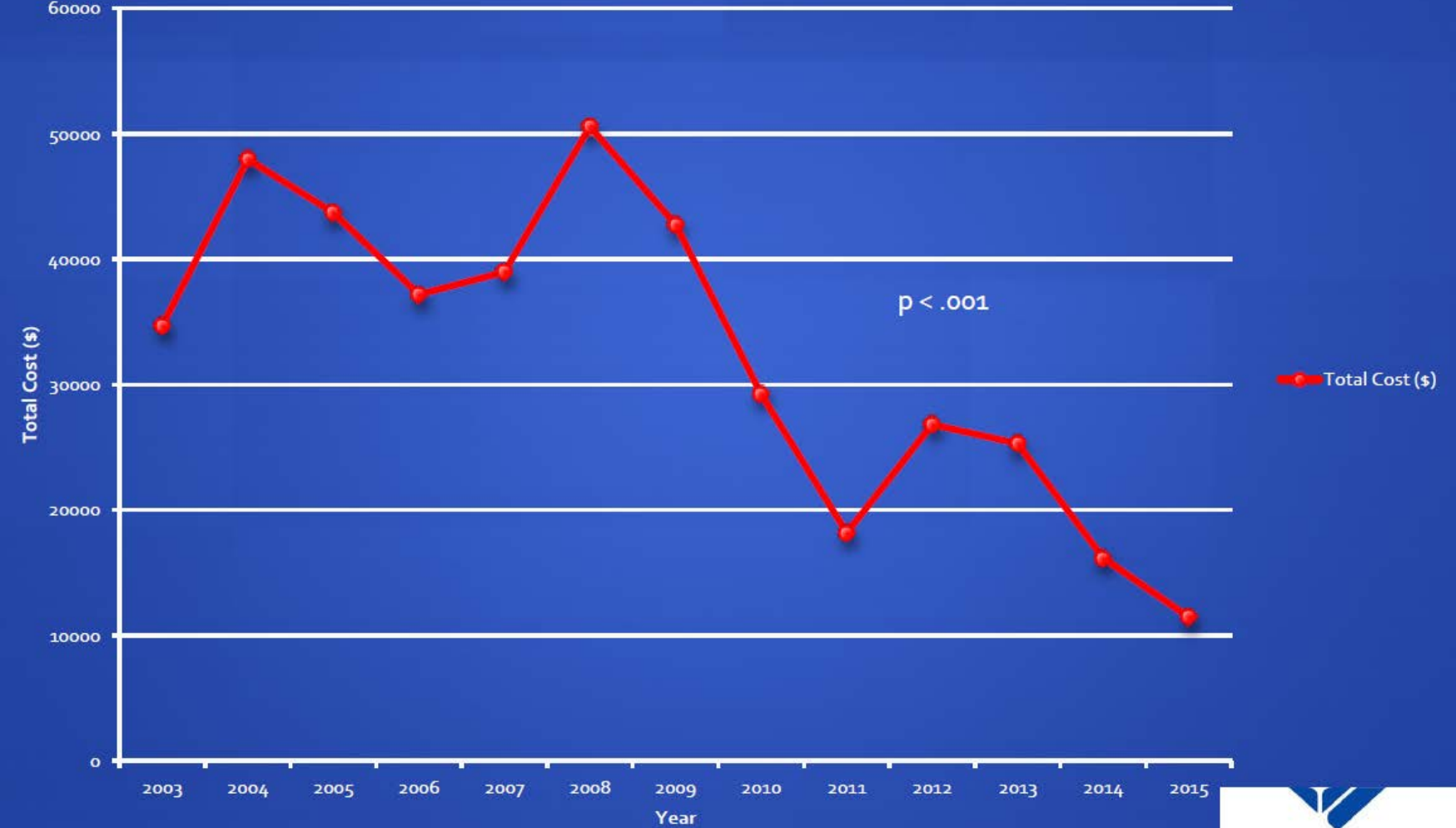
Safety

Skin-to-skin care (SSC) and rooming-in have become common practice in the newborn period to encourage the bonding process. However, newborns may be unintentionally injured while in the care of their families soon after birth. Exhausted family members may not contemplate the possibility of a fall, bump to the head, or other injury occurring while their newborn is placed in their care. The challenge for maternity units is to promote a close interaction between families and their newborns while ensuring safety.

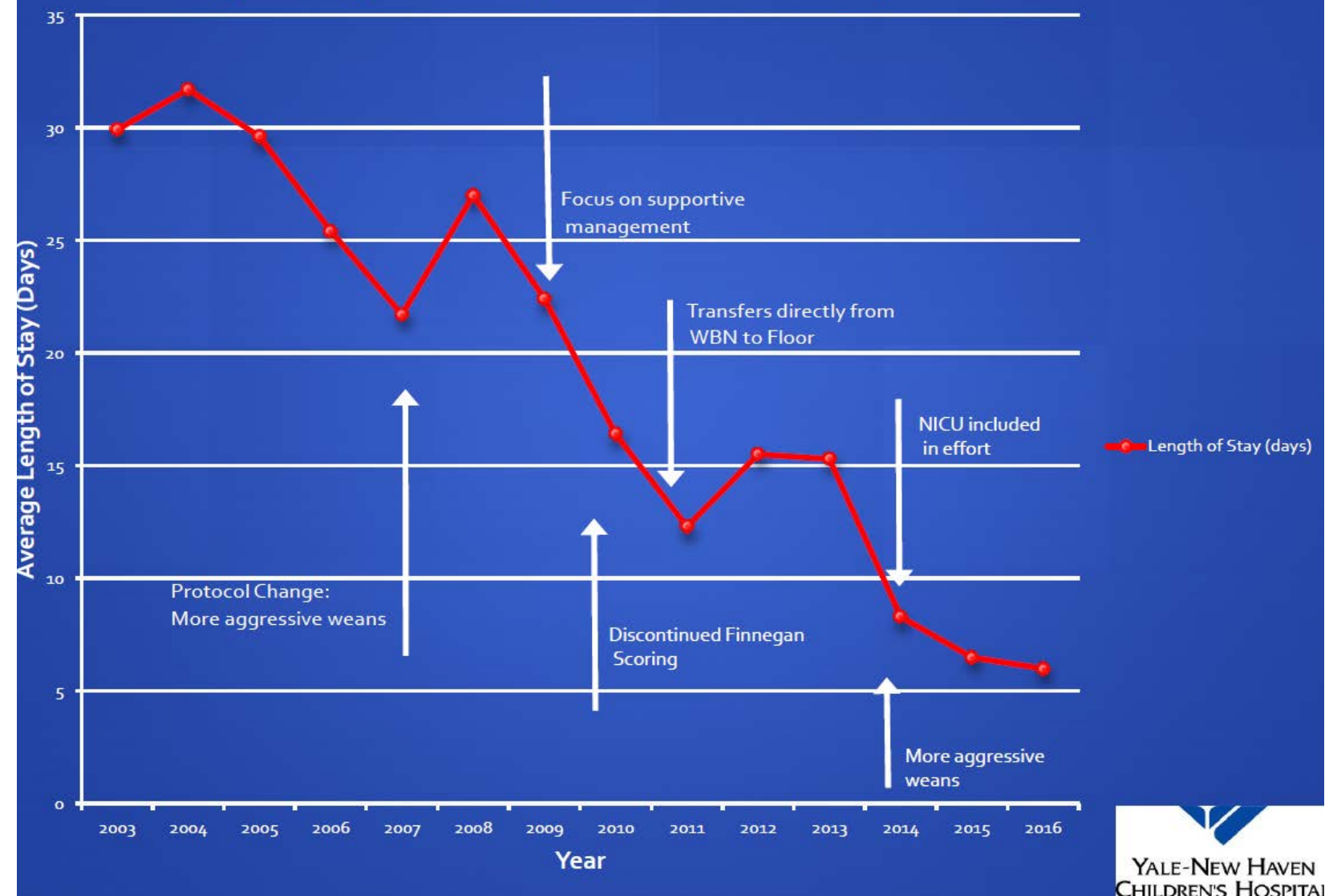


Reasons Newborns Fell While under Family Care, July 2004 through December 2013, as Reported to the Pennsylvania Patient Safety Authority (N = 272)

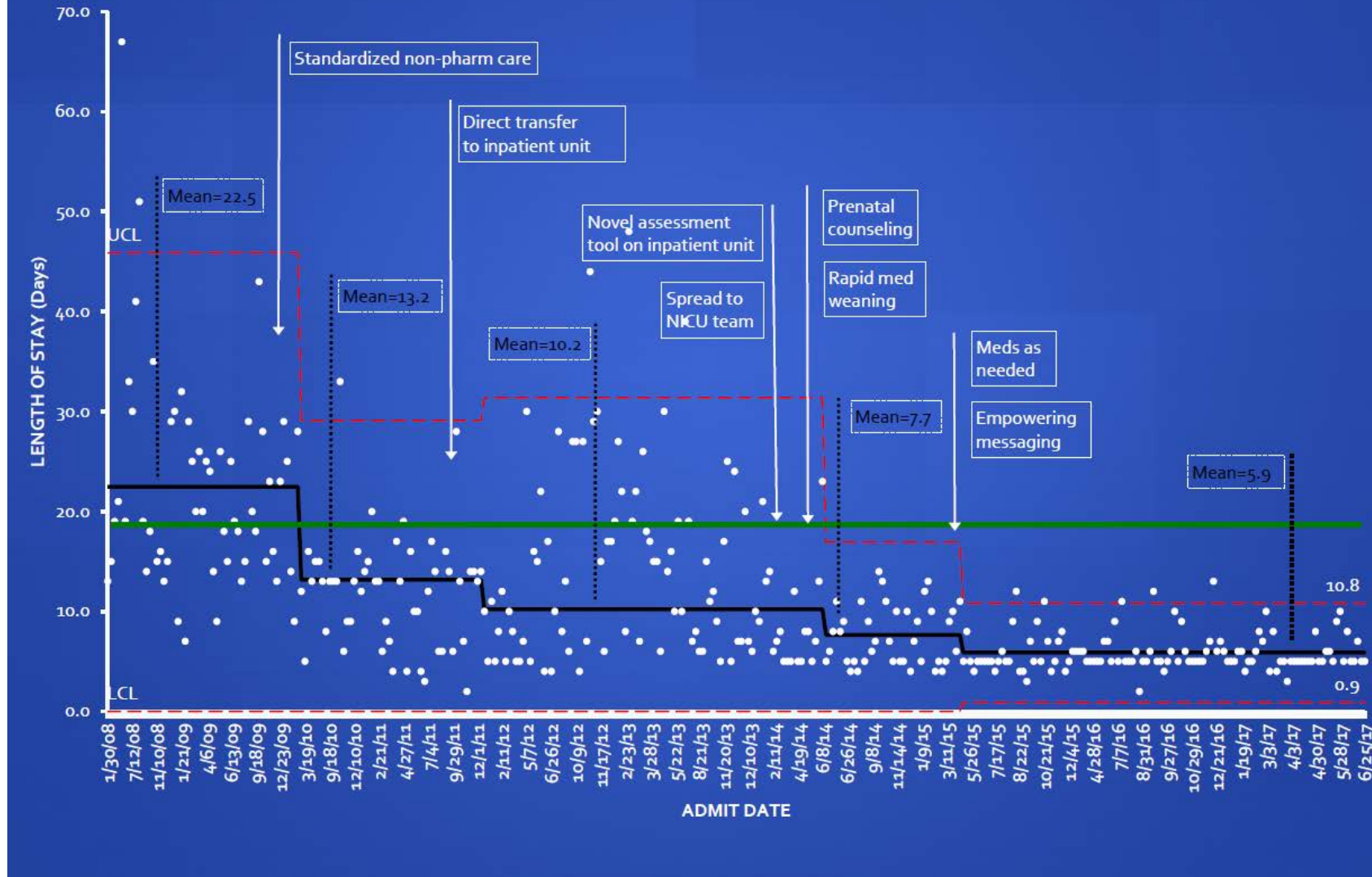
Total Average Cost of NAS Care



Average Length of Stay - Methadone Exposed Infants



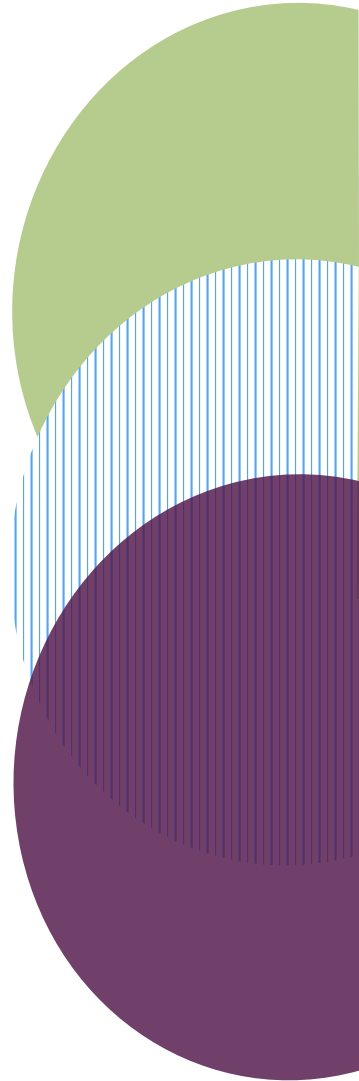
Length of Stay: Methadone exposed infants



Smoking During Pregnancy

- 11% - 30% of pregnant women smoke or exposed to tobacco smoke.
- Smoking & second hand smoke has a devastating effect on their children.
- Miscarriage, Premature Birth
- Birth Defects
- Sudden infant death, respiratory infections, wheezing, asthma, middle ear infection in their children.
- Smoking parents – role model for future smokers.

smokefree.gov (1-800-Quit-Now)



Use Consistent and Standard Evidence-Based Protocol

“Withdrawal from opioids or sedative-hypnotic drugs may be life-threatening, but ultimately, drug withdrawal is a self-limited process. Unnecessary pharmacologic treatment will prolong drug exposure and the duration of hospitalization to the possible detriment of maternal-infant bonding. The only clear benefit of pharmacologic treatment is the short-term amelioration of clinical signs.”

Hudak ML, Tan RC; COMMITTEE ON DRUGS; COMMITTEE ON FETUS AND NEWBORN; American Academy of Pediatrics: Neonatal drug withdrawal. *Pediatrics* 2012; 129:e540–e560