

America's Heroin Epidemic Our Babies

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May 7, 2014

Objectives

By paying extremely close attention over the next 50 minutes or so, you will

- be able to better understand the resurgence of heroin abuse in America
- be able to identify and manage the opioid-exposed infant
- be able to understand the complex interaction of social and legal implications for the drug-exposed infant

Man steals more than \$100,000 from grandmother in order to buy heroin, other drugs



“He told his grandmother the money was for college. He admitted that he never attended any college nor has he enrolled in one.”

NOLA.com, May 6, 2014

Inside America's Heroin Epidemic

BBC News

http://www.youtube.com/watch?v=SsYhC_OPwVU

Heroin

- Morphine + 2 acetyl groups
 - Heroin is inactive, but converts in the body to morphine
- Opioid analgesic first synthesized in 1874
- Named derived from German *heroisch* (heroic, strong)
 - Via Bayer pharmaceutical company
- H, smack, horse, brown, black, tar
- Opium poppy
 - Afghanistan
 - Mexico (production increased x 6 from 2007-2011)

Medical use

- Used as an analgesic in the United Kingdom (diamorphine)
- Used for opioid replacement therapy
 - United Kingdom
 - Netherlands
 - Switzerland
 - Germany
 - Denmark

Recreational use

- Routes
 - Snort
 - Smoke
 - Inject
- Intense euphoria
- Tolerance
- Highly addictive

Negative effects

- Physical dependence
 - Withdrawal
- Overdose
- Infections
 - HIV, Hep B, Hep C
 - Abscesses
 - Endocarditis
- Contaminants
- Associated negative behaviors
- Expensive
 - Illegal activities

Heroin by the numbers

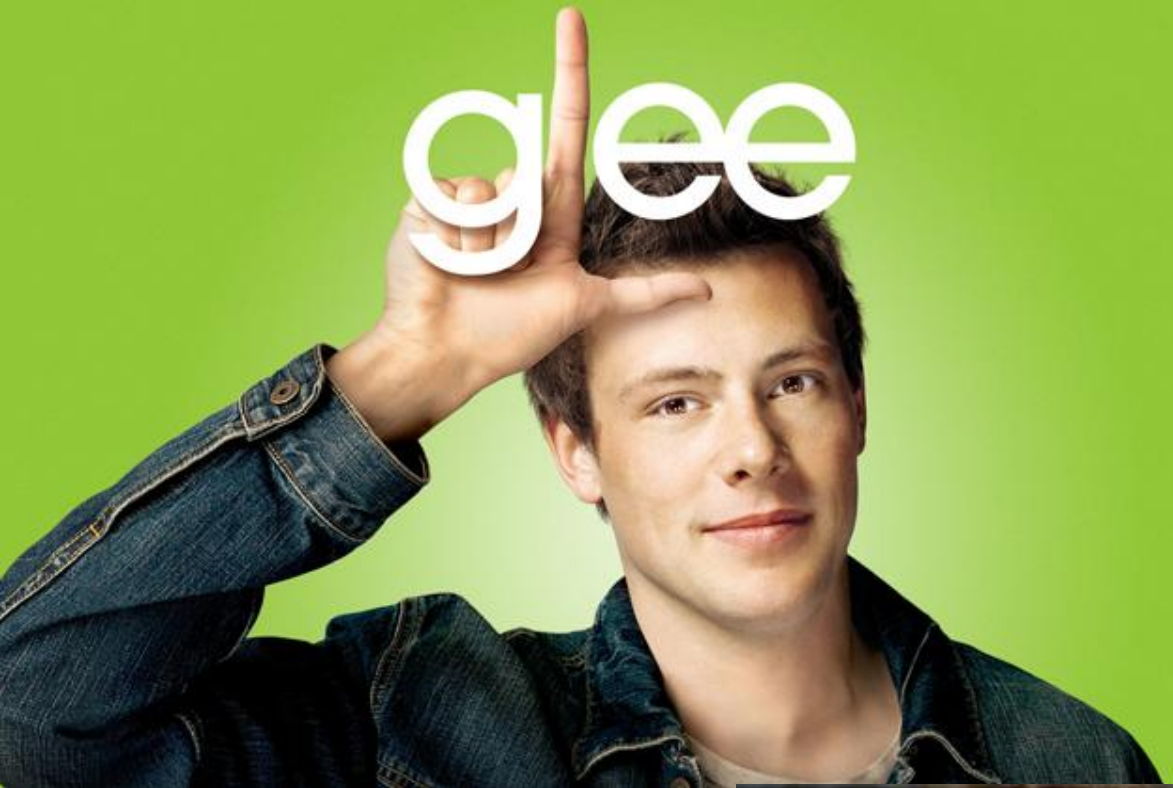
- Over 5 million people in the US have used heroin
 - About one in four users become dependent
- 500,000 heroin addicts in the US
- On an average day in the US
 - Over 400 people will use heroin for the first time
 - Over 500 people will go the ER for a complication of heroin abuse
 - Over 100 people will die of a heroin overdose
- Heroin overdose
 - 1 in 4 heroin users has a near fatal overdose annually
 - For each fatal overdose, there are an estimated 25-50 non-fatal overdoses

Heroin and History

- Bayer goofed in thinking it could cure morphine addiction
- Harrison Narcotics Tax Act 1914 restricted use in US
- Bayer lost trademark rights to Heroin in 1919 with the Treaty of Versailles ending WW I after Germany's defeat
- Banned by Congress 1924
- Banned by League of Nations 1925
- Used as murder agent
- Famous addicts and overdoses

**Captain Jack will get you high tonight
And take you to your special island
Captain Jack will get you by tonight
Just a little push and you'll be smilin'**

**Captain Jack
Billy Joel**



John's gone, found dead, he dies high,
he's brown bread.

Later said to have drowned in his bed.

After the laughter, the wave of dread,
it hits us like a ton of lead.

That's Why I'm Here
James Taylor

The New Face of Heroin Addiction

ABC News

http://www.youtube.com/watch?v=cskq_zGVSZs

How did we get where we are?

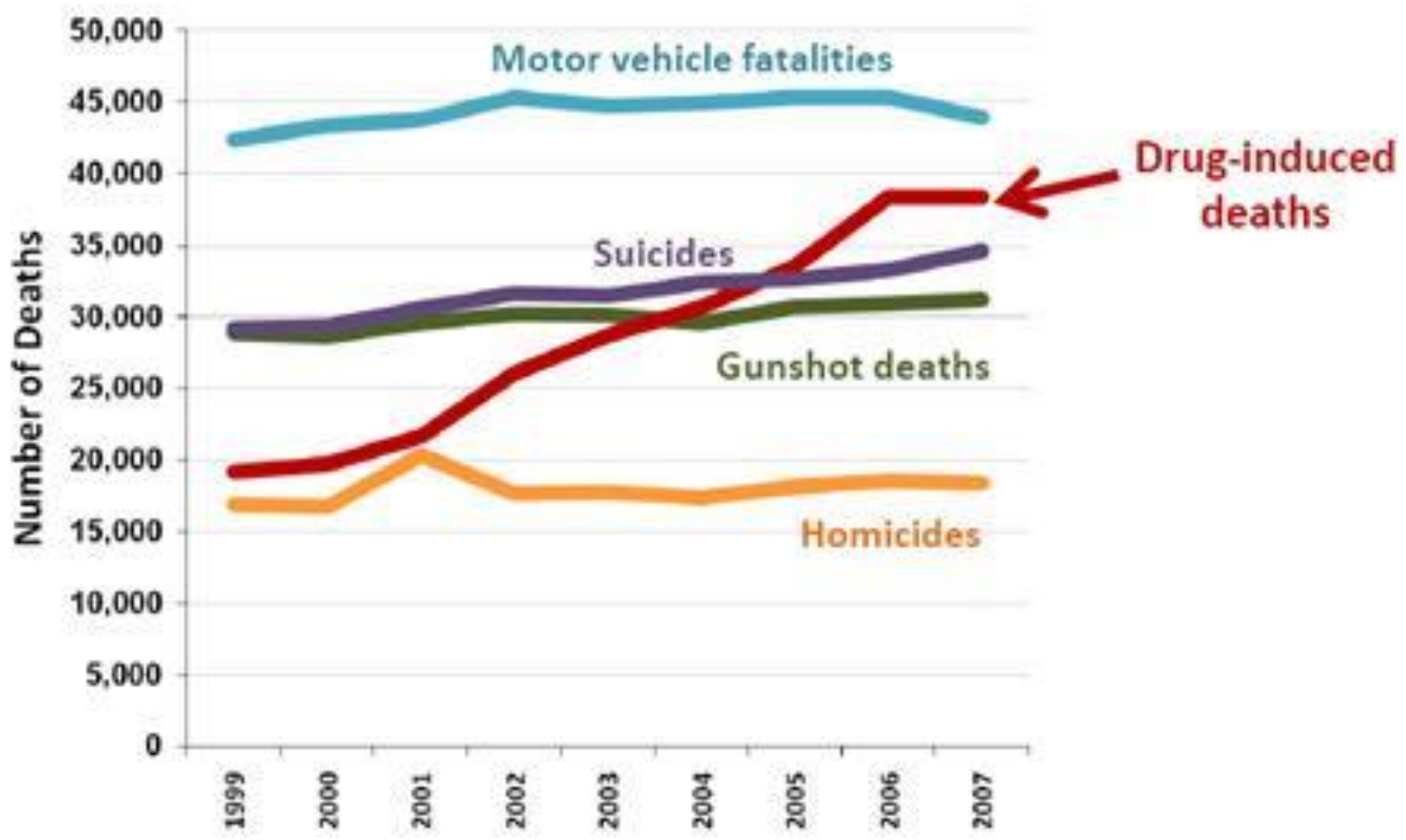
- Rising prescription drug abuse
 - From 2000-09, prescriptions for opioids increased 48%
- Resultant problems
 - Addiction
 - Overdose
 - Crime

Local experience post-Katrina

“...an increase in the number of infants with symptoms of withdrawal from opiates was noted in community hospitals, which is consistent with reported increased illicit use of prescription narcotics after Katrina.”

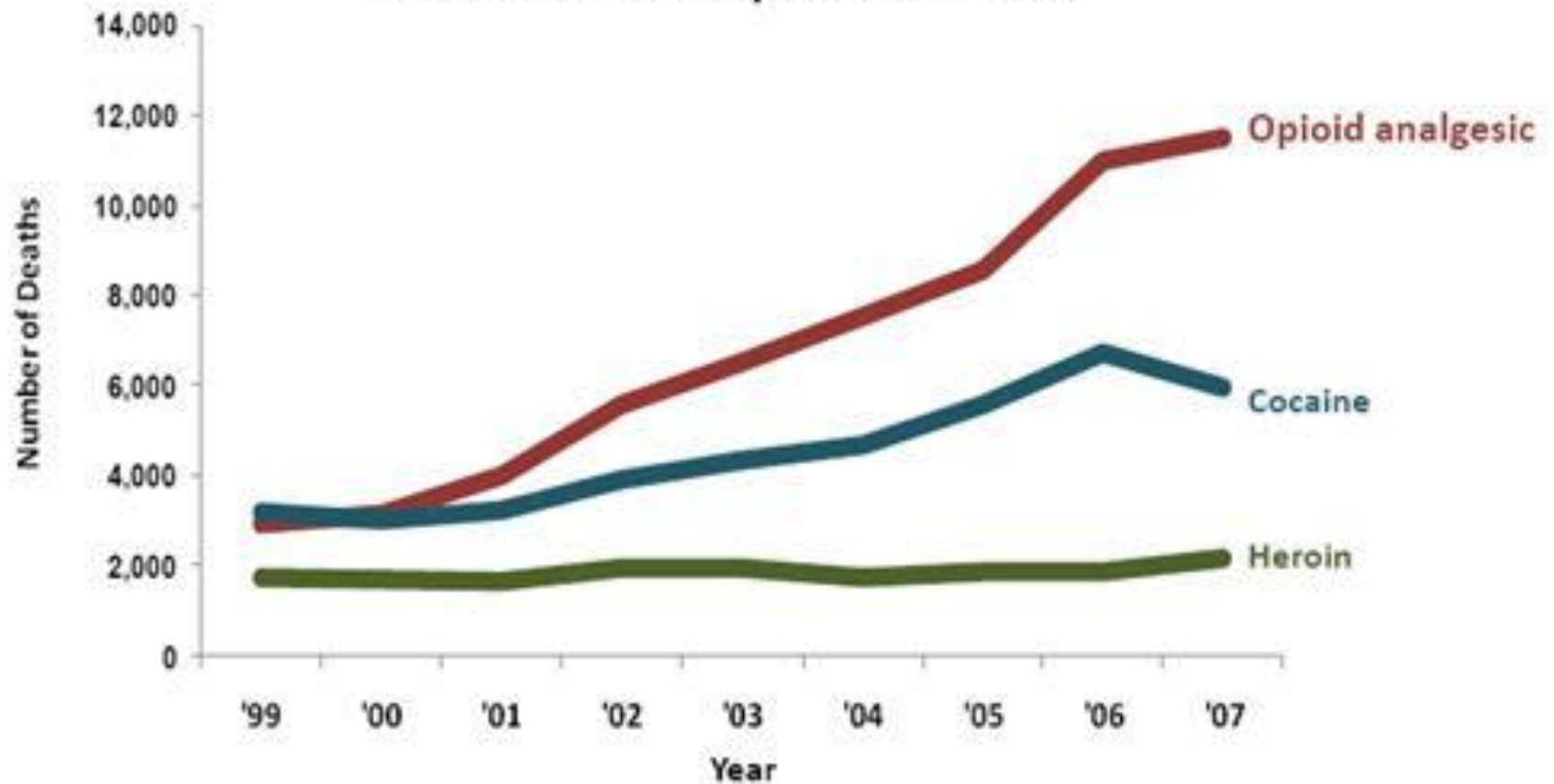
Pediatrics 2011;128;S8

Drug-Induced Deaths Second Only to Motor Vehicle Fatalities, 1999–2007



Source: National Center for Health Statistics, Centers for Disease Control and Prevention. National Vital Statistics Reports *Deaths: Final Data for the years 1999 to 2007 (2001 to 2010)*.

Unintentional Overdose Deaths Involving Opioid Analgesics, Cocaine and Heroin United States, 1999–2007



Source: Centers for Disease Control and Prevention. *Unintentional Drug Poisoning in the United States* (July 2010).

EPIDEMIC: RESPONDING TO AMERICA'S PRESCRIPTION DRUG ABUSE CRISIS

- 2011 Obama administration policy standardizing national approach to this problem
 - State and local approaches already underway at this time
- Education
- Prescription Drug Monitoring Programs
- Heightened enforcement/stiffer penalties

Doctor arrested on drug charges
Prescriptions sold, authorities believe
NOLA.com March 14, 2007

“...Investigators think she also abused prescription drugs, Renton said. Officers who searched her River Ridge apartment Monday found \$33,335 in cash as well as several drugs for which she had no legal prescription, he said.”

Former doctor pleads guilty in drug case

NOLA.com

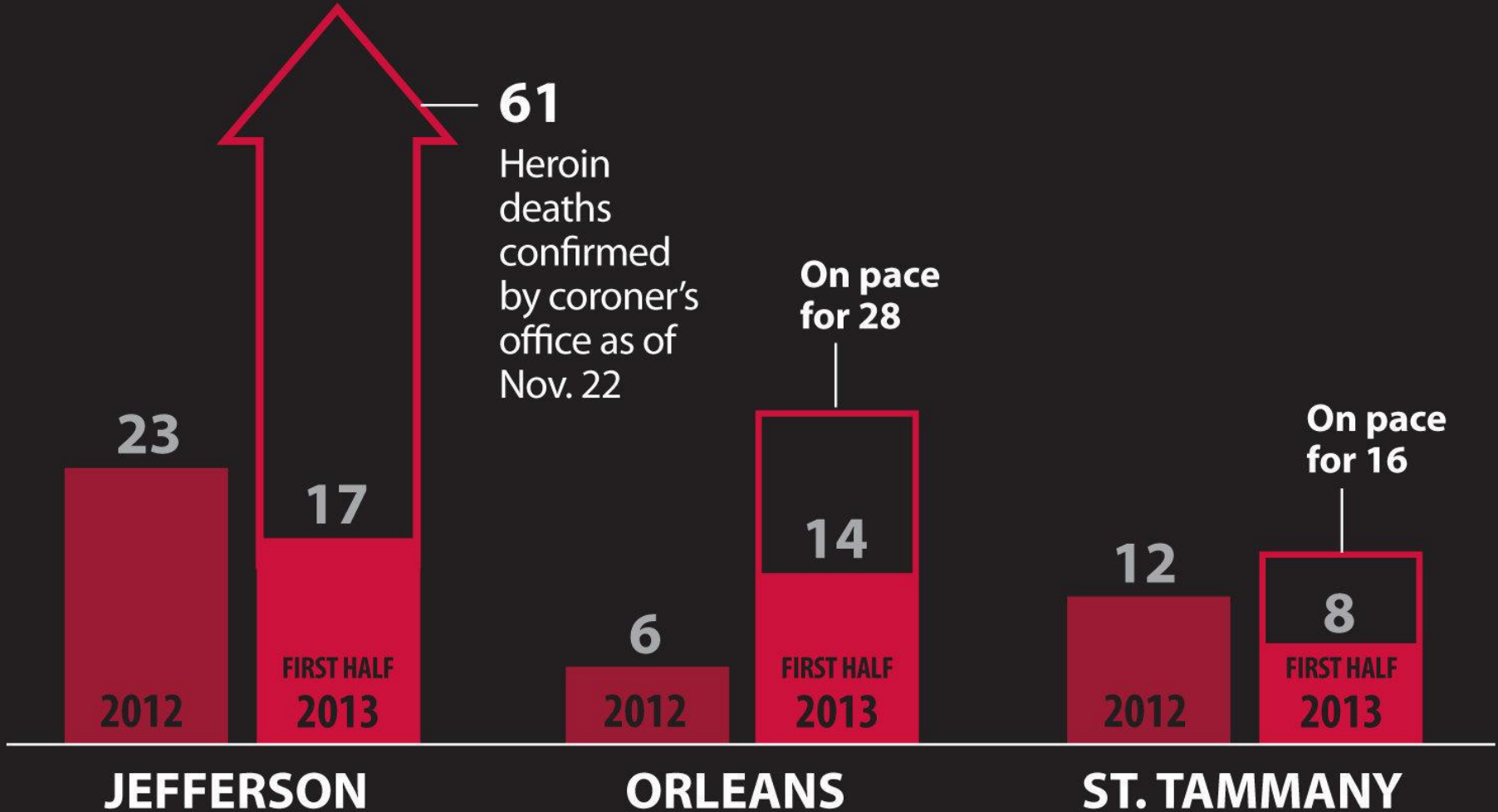
July 24, 2009

“...faces up to 20 years in prison and up to \$1 million in fines after pleading guilty to conspiracy to dispense and distribute controlled substances, including Oxycodone, Alprazolam, and Hydrocodone. Sentencing is set for Nov. 4.”

How did we get where are?

- Addicts gonna use, Dealers gonna deal
 - Mexican heroin production increased x 6 from 2007-11
- Less law enforcement emphasis on heroin than prescription drugs
- Prescription opioid abuse continues to be a major problem
- Heroin in 2014
 - Available
 - Cheaper
 - Variable potency
 - Less experienced users

JEFFERSON PARISH LEADS STATE IN HEROIN DEATHS



Source: Louisiana Department of Health and Hospitals

NOLA.com | The Times-Picayune



The Pregnant Heroin Addict

- Probably undesired pregnancy (86% - Heil , et al)
- Poor use of prenatal care
 - Avoid drug screening
 - Avoid legal trouble
 - Avoid withdrawal
- Associated risk factors
 - Hepatitis
 - HIV
 - Other STDs
- Social risk factors

Polydrug abuse

- Common
 - All combinations
 - Marijuana
 - Cocaine
 - Methamphetamine
 - Benzodiazepines
 - Alcohol
 - Tobacco
- Associated problems
- More complicated pregnancy
- Poor parenting skills

Treatment

- Problems going cold turkey
 - Acute withdrawal may cause pregnancy loss/preterm birth
- Drug substitution (Methadone, Buprenorphine)
 - Benefits
 - Oral administration
 - Known drug, dose, and purity
 - Steady availability
 - Improved prenatal care
 - Avoid acute withdrawal with pregnancy loss/preterm birth
 - May avoid relapse to heroin
 - Problems
 - High likelihood of neonatal withdrawal

Methadone

- Synthetic opioid which acts on morphine receptors
 - Long half life
 - Avoids withdrawal, blocks high from opioids, avoids other risks
- Most extensive use in pregnancy as substitution drug
 - Higher doses needed in 3rd trimester
- When compared with buprenorphine
 - Better compliance
 - Higher potential for overdose
 - Higher risk of neonatal withdrawal
- Daily dose administered via licensed methadone clinic
 - Stigma of methadone clinic
 - Frequent visits

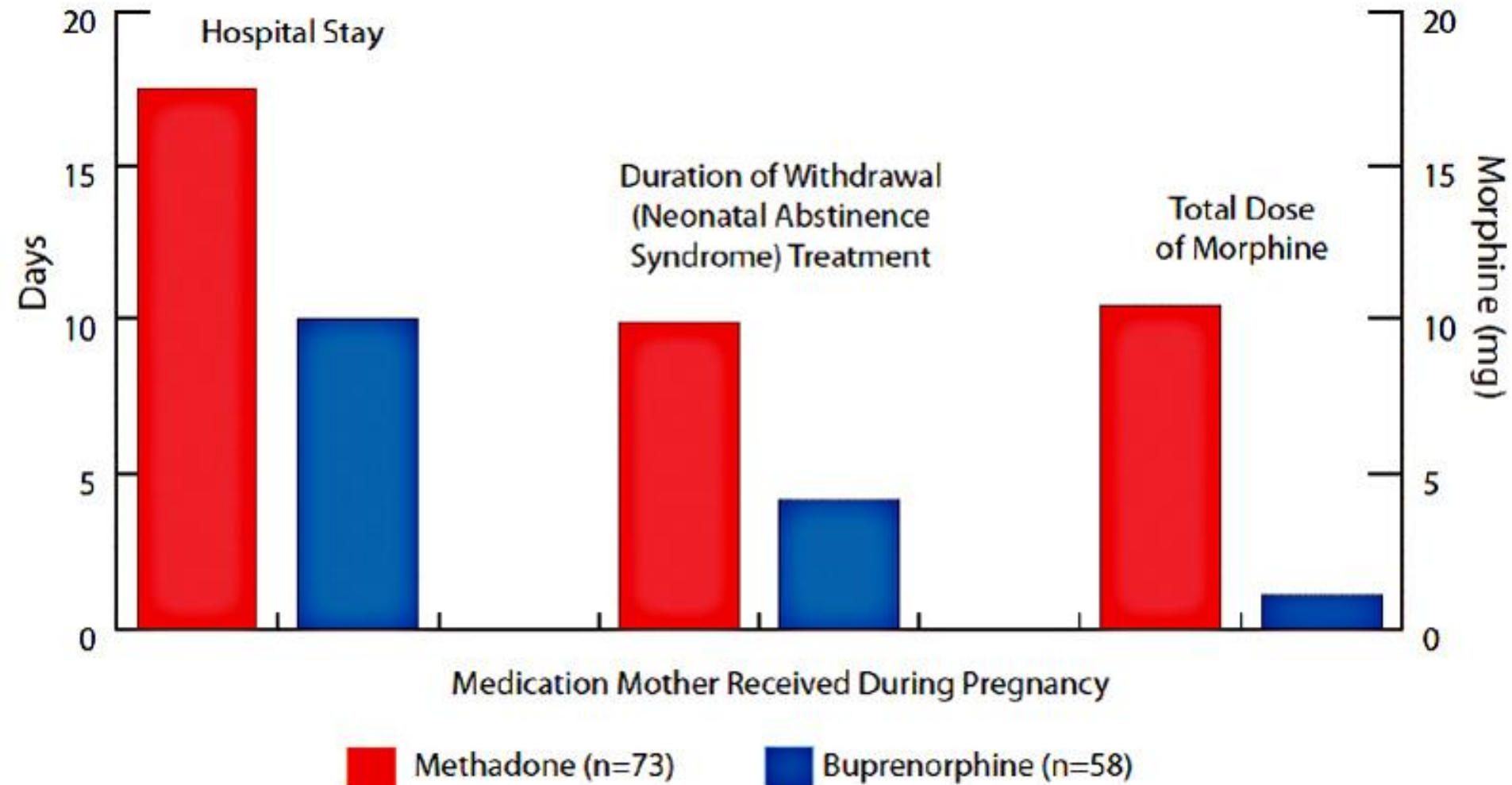
Buprenorphine

- Former trade name Subutex
 - Partial opioid agonist, long half life
- More recent but progressive experience and study in pregnancy
 - Limited long term data
 - Poorer compliance, but slightly lower risk of withdrawal than methadone
- More readily available than Methadone

- Buprenorphine/naloxone (Suboxone)
 - Partial agonist/antagonist intended to minimize abuse potential
 - Sublingual film
 - Limited study
 - Concern over teratogenicity

Neonatal abstinence syndrome after methadone or buprenorphine exposure

Hall, et al, 2010, NEJM



Neonatal abstinence syndrome

- Pharmacotherapy needed in 42-94% of exposed infants
- More likely in term infants
 - Longer duration of exposure
- Questionable correlation with maternal dose
- From 2000-2009
 - Maternal opiate use increased from 1.19 to 5.63/1000 births
 - NAS increased from 1.20 to 3.39/1000 births
- From 2009-2014
 - Even higher!!

Factors influencing NAS

- Maternal exposures
 - Substances, polysubstances, timing
- Maternal factors
 - Nutrition, health, stress, comorbidities
- Placental opioid metabolism
- Genetics
- Infant factors
 - Preterm birth, comorbidities
- Environmental factors
 - Nursery environment, caretaker skills/interest

Manifestations

- High-pitched cry
- Sleep and wake disturbances
- Alterations in tone and/or movement
- Feeding difficulties
- Gastrointestinal disturbances
- Autonomic dysfunction
- Failure to thrive
- Seizures

Differential diagnosis

- Hypocalcemia
- Hypoglycemia
- Hypoxic-ischemic encephalopathy
- Sepsis
- Hyperthyroidism
- Poor feeding

- Potential overlapping findings (risk factors, manifestations) associated with this differential

Newborns Suffer Withdrawal Marquette General Hospital

<http://www.youtube.com/watch?v=4O3Bb5tFo0A>

Assessment

- Index of suspicion
- Don't miss other potential causes of infant symptoms
- Maternal/infant toxicology screen
- Clinical symptoms
 - NAS scoring tools
 - Finnegan Neonatal Abstinence Scoring Tool
 - Consistency
 - Inter-observer reliability

Central Nervous System Disturbances

ore

Crying: Excessive High Pitched

Crying: Cont. High Pitched

Sleeps < 1 Hr After Feeding

Sleeps < 2 Hr After Feeding

Sleeps < 3 Hr After Feeding

Hyperactive Moro Reflex

Markedly Hyperactive Moro Reflex

Mild Tremors: Disturbed

Mod-Severe Tremors: Disturbed

Mild Tremors: Undisturbed

Mod-Severe Tremors Undisturbed

Increased Muscle Tone

Excoriation (Specific Area)

Myoclonic Jerk

Generalized Convulsions

2

3

3

2

1

2

3

1

2

3

4

2

1

3

5

Metabolic, Vasomotor And Respiratory Disturbance

Sweating	1			
Fever < 101 (37.2-38.3c)	1			
Fever > 101 (38.4c)	2			
Frequent Yawning (> 3)	1			
Mottling	1			
Nasal Stuffiness	1			
Sneezing (>3)	1			
Nasal Flaring	2			
Respiratory Rate (> 60/Min)	1			
Respiratory Rate (>60/Min With Retractions)	2			

Gastrointestinal Disturbances

Excessive Sucking

1

Poor Feeding

2

Regurgitation

2

Projectile Vomiting

3

Loose Stools

2

Watery Stools

3

Assessing Signs & Symptoms of
Neonatal Abstinence
Using the Finnegan Scoring Tool

**An Inter-Observer
Reliability Program**

Instructional Manual

2nd Edition

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Loretta Finnegan, MD

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“Don’t wake up that baby!!”



How long to observe the drug-exposed infant for possible NAS?

- Depends on drug
- Major concern is opioid exposures
- Most short acting drugs (shorter half-life) will manifest within first 1-2 days after birth
- Concern for longer acting drugs (longer half-life) like methadone or buprenorphine
 - Observe minimum 3-5 days after birth
 - Beware rising NAS scores
 - Beware insurance companies!

Non-pharmacologic measures

- Feeding
 - Breastfeeding
 - Benefits/risks
 - ± Lactose free formula
- Pacifier
- Swaddling
- Holding
- Quiet, dark environment

When to start pharmacologic measures

- Higher scores
 - Scores of 8 or greater on 3 consecutive scores
 - Total score of 12 or greater for 2 consecutive scores
 - Etc.
-
- Importance of knowing/trusting the scorer

What to use?

- Oral morphine – 10% alcohol
- Oral methadone – 8% alcohol, chlorobutanol

- Falling out of favor
 - Paregoric – 45% alcohol, morphine, many additives
 - Tincture of opium – 17-21% alcohol, opiate alkaloids, morphine
 - Non-opiate drugs – Phenobarbital, Valium

- 2nd drug if needed
 - Phenobarbital
 - Clonidine

Pharmacologic therapy

- Use generally results in an extended hospital stay
 - Fear of sending high-risk infants home to high-risk settings
- Once decision made to use pharmacologic therapy, use enough to lessen withdrawal (get ahead in the game!)
- Early initial dose adjustment
- Slow taper
- Observe off drugs prior to discharge

Morphine for withdrawal

- Short half-life allows for easier dose adjustment
- Dose every 3-4 hours around the clock
- Dose based on weight
- Dose based on score
- Combination of these (weight and score)
- Neofax
 - 0.03-0.1 mg/kg per dose PO q 3-4 hrs
 - Wean by 10-20% every 2-3 days

Methadone for withdrawal

- Longer half-life results in more difficult dose adjustment
- Dose every 12-24 hours
- Neofax
 - 0.05-0.2 mg/kg per dose PO q 12-24 hrs
 - Wean by 10-20% per week over 4-6 weeks

What to expect for the baby who requires pharmacologic therapy?

- Hospital stay 3-6 weeks
- Variable interaction with the mother/family
 - Abandonment
 - Near abandonment
 - Something in between
 - Intermittent compensatory over attentiveness
 - Compensatory over attentiveness

Social service support

- Assist in family evaluation
 - Determine drug exposure
 - Determine home environment
 - Determine suitability for discharge to family
- Facilitate reporting to state agency

Child protection investigation

is the investigation of child abuse and neglect, as well as the provision of short-term, concrete services to children and families. These services are legally mandated, specialized investigations and social services for children who are alleged to be neglected, abused, exploited or without proper custody or guardianship.

DCFS website

Mandatory reporters

- Health practitioner
 - physician, surgeon, physical therapist, dentist, resident, intern, hospital staff member, podiatrist, chiropractor, licensed nurse, nursing aide, dental hygienist, any emergency medical technician, paramedic, optometrist, medical examiner, or coroner
- Mental health/social service practitioner
- Member of the clergy
- Teacher or child care provider
- Police officers or law enforcement officials.
- Commercial film and photographic print processor
- Mediators
- Court-Appointed Special Advocates (CASA)
- Organizational or Youth Activity Provider
- Coach

What is *prenatal neglect* and who is a mandated reporter?

- Children's Code Article 603(16.1) states: "Prenatal Neglect means the unlawful use by a mother during pregnancy of a controlled dangerous substance, as defined by R.S. 40:961 et seq., which results in symptoms of withdrawal in the infant or the presence of a controlled substance in the infant's body."
- Physicians are mandated to make a report to DCFS by calling 1-855-4LA-KIDS (1-855-452-5437) toll free 24 hours a day, 365 days a year, whenever an infant meets the criteria for prenatal neglect.

Department of Children and Family Services

Suzy Sonnier
Secretary



- Child protection
- Office of Community Services (OCS)
- DCFS
- 2014 Legislative session
 - Bill (HB 1256) proposed to combine DCFS and DHH
 - To allow creation of new Dept of Elderly Affairs

LA DCFS Activities – April 2014

- Child abuse and neglect
 - 1,982 investigations
- Food stamps
 - 369,116 cases
- Child care assistance
 - 15,318 cases
- Foster care
 - 4,502 children
- Child support
 - \$38,396,178

DCFS child abuse/neglect cases

- Historically action varied by parish
 - Centralized reporting 2011
- Most parishes understaffed, underfunded, overburdened
- Parents get the benefit of the doubt
- Typically requires more extreme neglect for child to be taken from family
- Decisions sometimes seem variable and arbitrary to caretakers

Louisiana Legislature 2014

- 3 bills specific to heroin
 - Increasing punishment for manufacture, possession or distribution
- 2 bills involving naloxone
 - Allowing first responders and third parties to administer naloxone for apparent acute opioid overdose

Bills to increase punishment for drug manufacture, possession, or distribution

- Public opinion
- What guides legislative efforts/ allows for legislative success
- Current law minimum 5 years, maximum 50 years
- Three separate proposed changes
 - Increase sentencing 10/99 years
 - Increase maximum sentencing to 99 years
 - Increases minimum to 10 years; for drug possession minimum 2 years and drug treatment program

Bills involving naloxone

- HB 754 allowing first responders to administer naloxone
 - Passed house and referred to senate
- HB 755 protects MDs from civil, criminal or licensure penalty for prescribing Naloxone to a person at risk for opiate overdose or to a family member/friend of such an at risk person; protects family member/friend from consequences for giving Naloxone in such an instance
 - Appears stalled in house committee at this time

Evzio

FDA NEWS RELEASE

For Immediate Release: April 3, 2014

**FDA approves new hand-held auto-injector
to reverse opioid overdose**

*First naloxone treatment specifically designed to be given
by family members or caregivers*

Long term outcomes for the heroin- exposed infant

- Incomplete information available
- Limited long term outcome data
 - Hard population to follow long term
 - Most studies look at short term outcomes (NAS, hospital days)
- Generally speaking, long term outcomes are better
 - when co-morbidities are limited
 - when good prenatal care is provided
 - when long term caregivers are stable and promote appropriate social interactions

Long term outcomes for the heroin- exposed infant

- Some determined by underlying co-morbidities
 - Prematurity
 - HIV exposure
- Difficult to separate impact of associated factors
 - Alcohol, tobacco, other drug exposures
 - Environmental factors
 - Socieconomic
 - Education
 - Poor/inconsistent parenting

In the end...

- The problem of drug abuse, especially heroin/opioid abuse, exists and there is no obvious, easy or happy ending
- Pediatricians will be involved in the care of drug-exposed infants; knowing how best to manage these children is important
- As pediatricians, knowledge and awareness of social issues within the family and within our society are important to provide optimal care
- Similarly, as leaders within our society, knowledge and awareness of legal/legislative issues that involve our provision of care are important

