

Maternal drug dependence & Neonatal Abstinence Syndrome

Manatee County

2000-2010

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Outline

- Primary statistics & video
- Overview of addiction, national and state statistics
- Background, methods & study findings
- Breastfeeding
- Additional outcomes
- Conclusions & recommendations

Pregnant women

addicted

to prescription drugs

The number of drug-addicted women delivering babies in Manatee County has increased

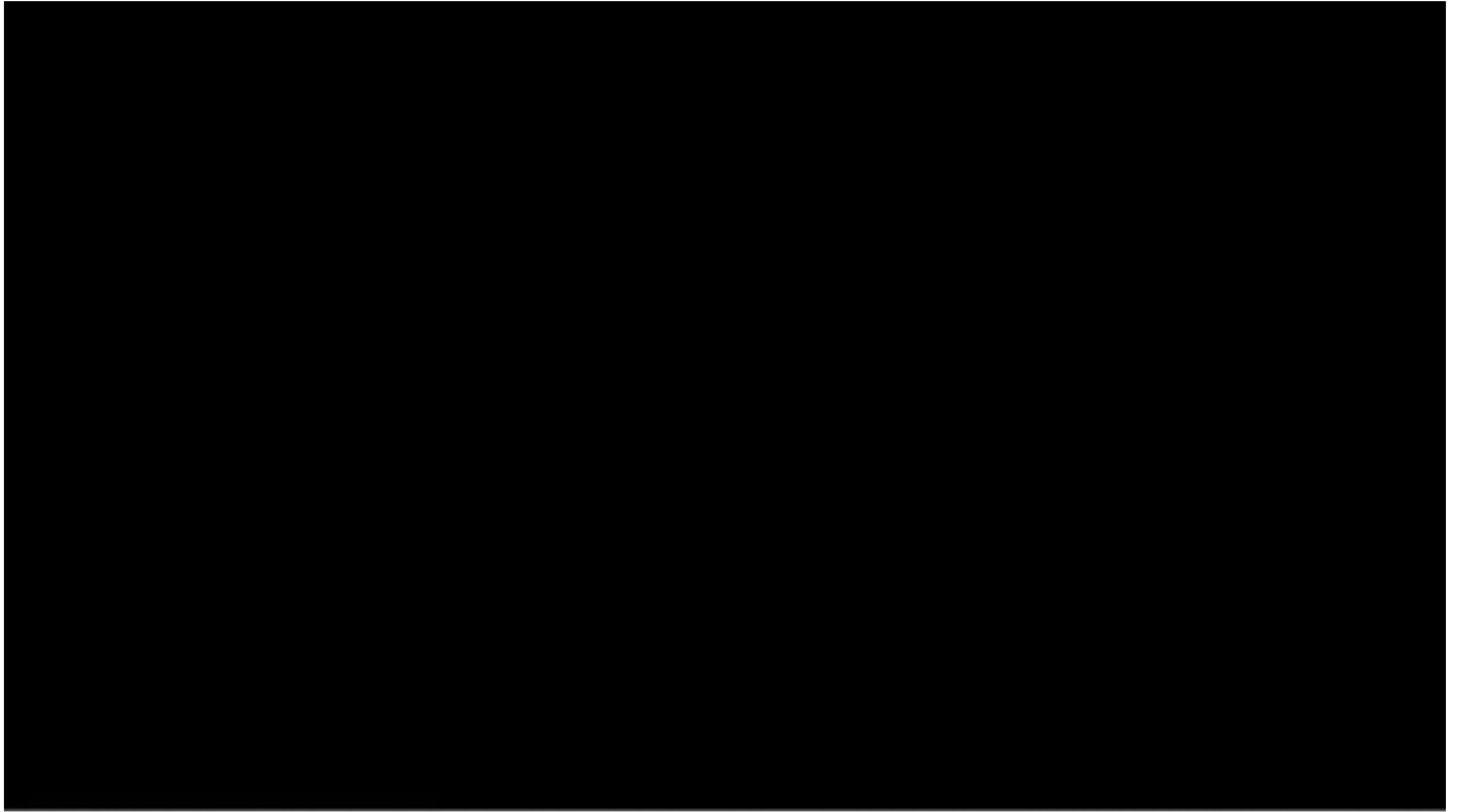
142%

The number of newborns diagnosed with drug withdrawal has increased

1800%

HOUSTON,

WE HAVE A PROBLEM.



What is addiction?

- Addiction is a chronic, often relapsing *brain disease* that causes compulsive drug seeking and use, despite harmful consequences to the addicted individual and to those around him or her.
- Although the initial decision to take drugs is voluntary for most people, the brain changes that occur over time challenge a person's self-control and ability to resist intense impulses urging them to take drugs.

Primary predictors of addiction

- Genetics
- Psychological/Emotional
- Family/Social/Environmental



Prescription drug statistics

- Prescription drug use second only to marijuana
- Opioids and sedatives responsible for more drug deaths than all other illicit drugs **COMBINED.**
- Florida's drug mortality has increased 175% in the last decade.
- Opiate treatment has increased by 400% in the last decade.

Drug use & pregnant women

- Up to 4% of all pregnant women abuse drugs.
- Death of women due to drugs increased 37% from 2005-2009.
- Pregnancy mortality due to drugs increased 170%.
- Mortality rate due to *prescription drugs* increased 80% from 2003-2009 for women age 15-44



Mental Health & Addiction

- 42% of adults with a substance abuse disorder, both male and female, have a co-occurring mental disorder.
- Levels of drug use were correlated with level of mental illness.
- Highest use of illicit drugs was among adults with a serious mental illness(SMI).
- Those with SMI were 2 times as likely to smoke.

Maternal Data

- Sample
 - All Sarasota & Manatee County resident births
 - n=66,837
- Inclusion Criteria
 - AHCA hospital record ICD-9 admission code of delivery from 2000-2010
- Case ascertainment
 - ICD-9 Diagnosis code of drug dependence
 - 304-*Drug dependence*
 - 305-*Non-dependent drug abuse (indicating drug used for reason other than what it was intended or in a manner or quantities other than directed)*
 - 648.4-*Drug dependence of mother complicating pregnancy or childbirth*
 - *Women with dependence to alcohol or tobacco **only** were excluded*

Drug of choice

White women
Opiates (8.5X)
Tobacco (2.1x)

Black women
Marijuana (60%)
Cocaine (70%)



Mental illness was present among



77%

of the drug-addicted women in our study
compared to 5% of non-dependent women

“Persons are traumatized when they face uncontrollable life events and are helpless to affect the outcome of those events.”

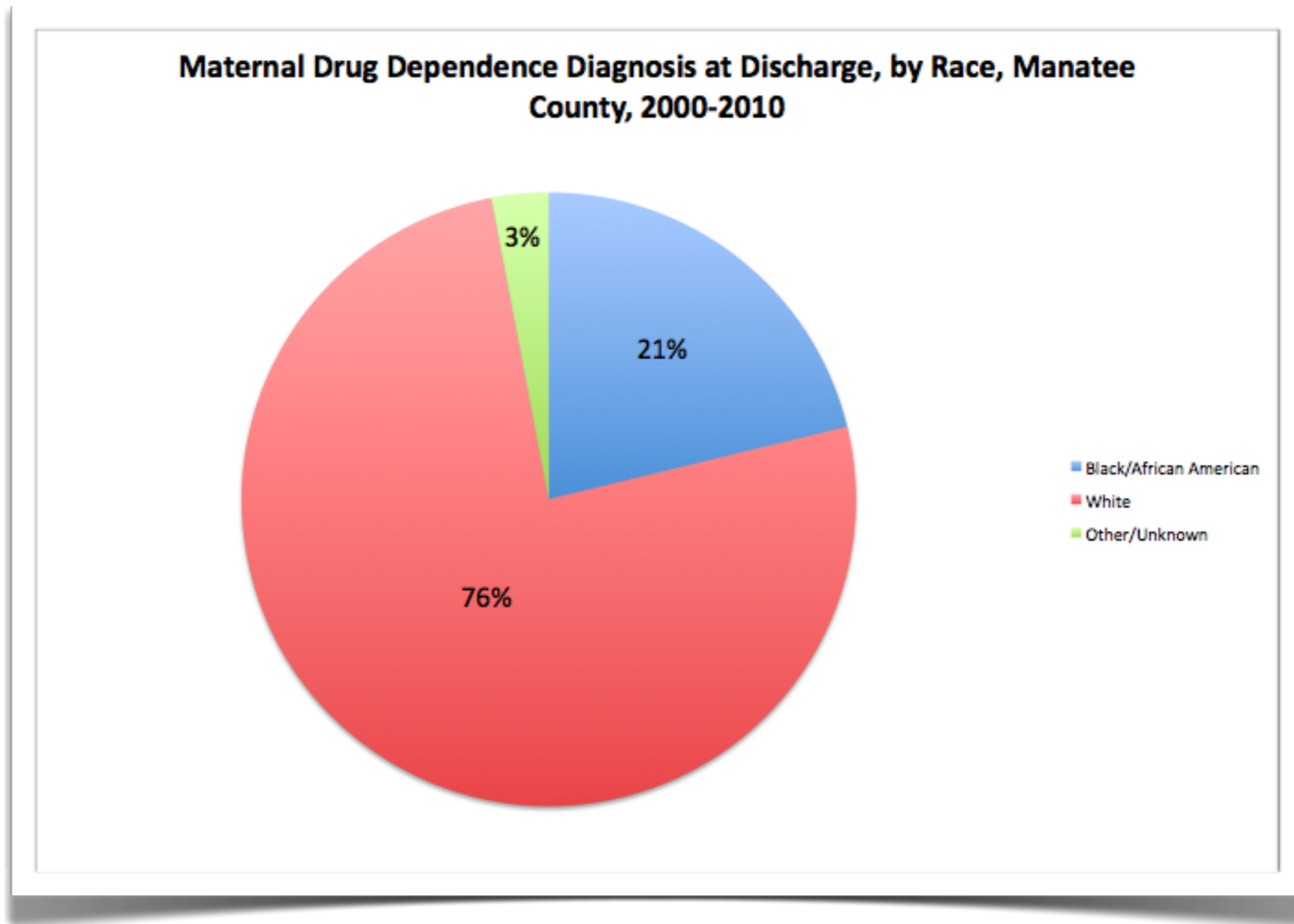
-Erich Lindemann, 1944

Trauma &

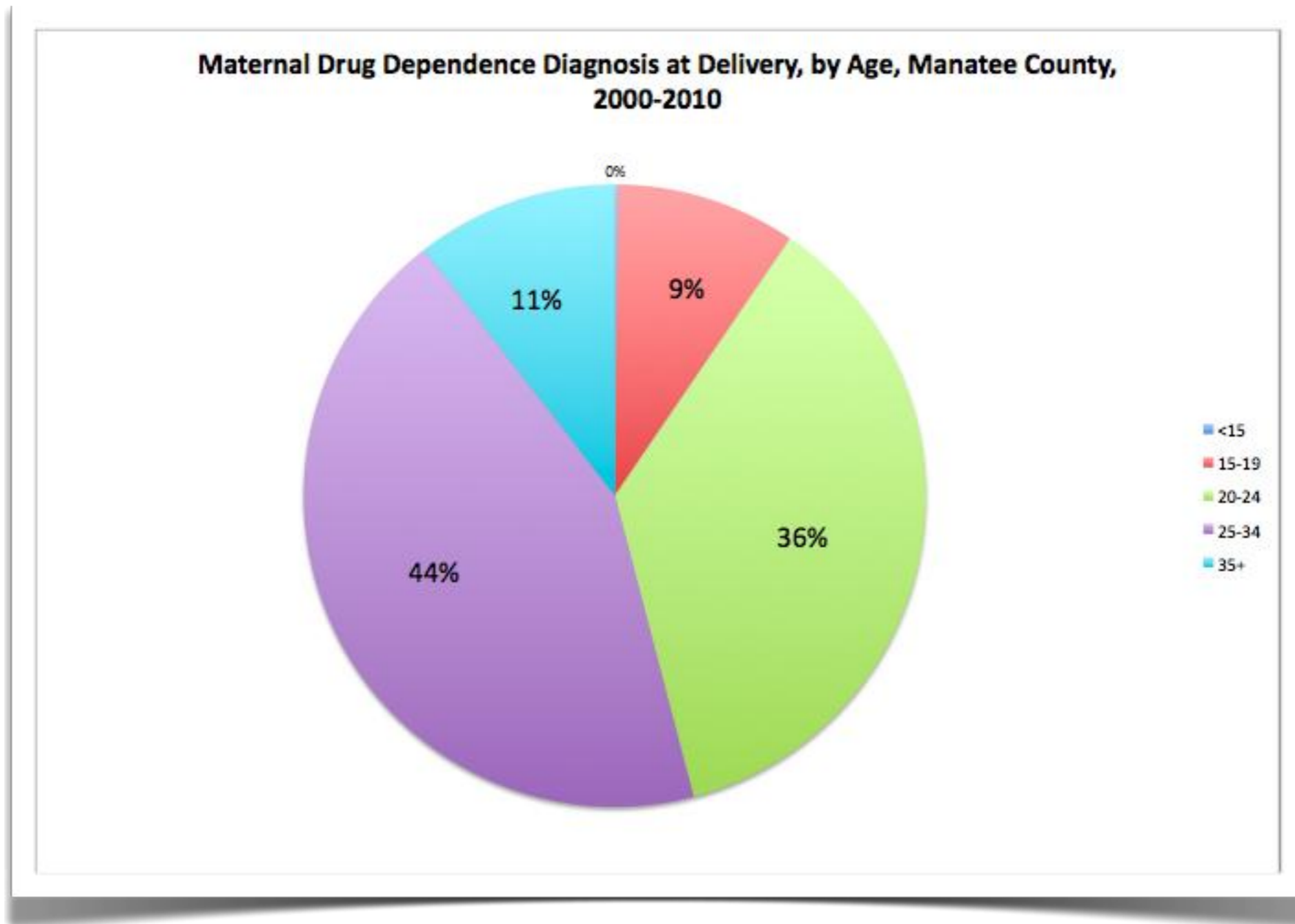


- Childhood trauma is highly associated with drug abuse.
- 50-70% of women who seek mental health services report childhood sexual abuse.
- Sexually abused women were the single largest group of people affected by PTSD.
- Depression, bi-polar, eating disorders, personality disorders, and schizophrenia are prevalent among traumatized, substance abusing women.

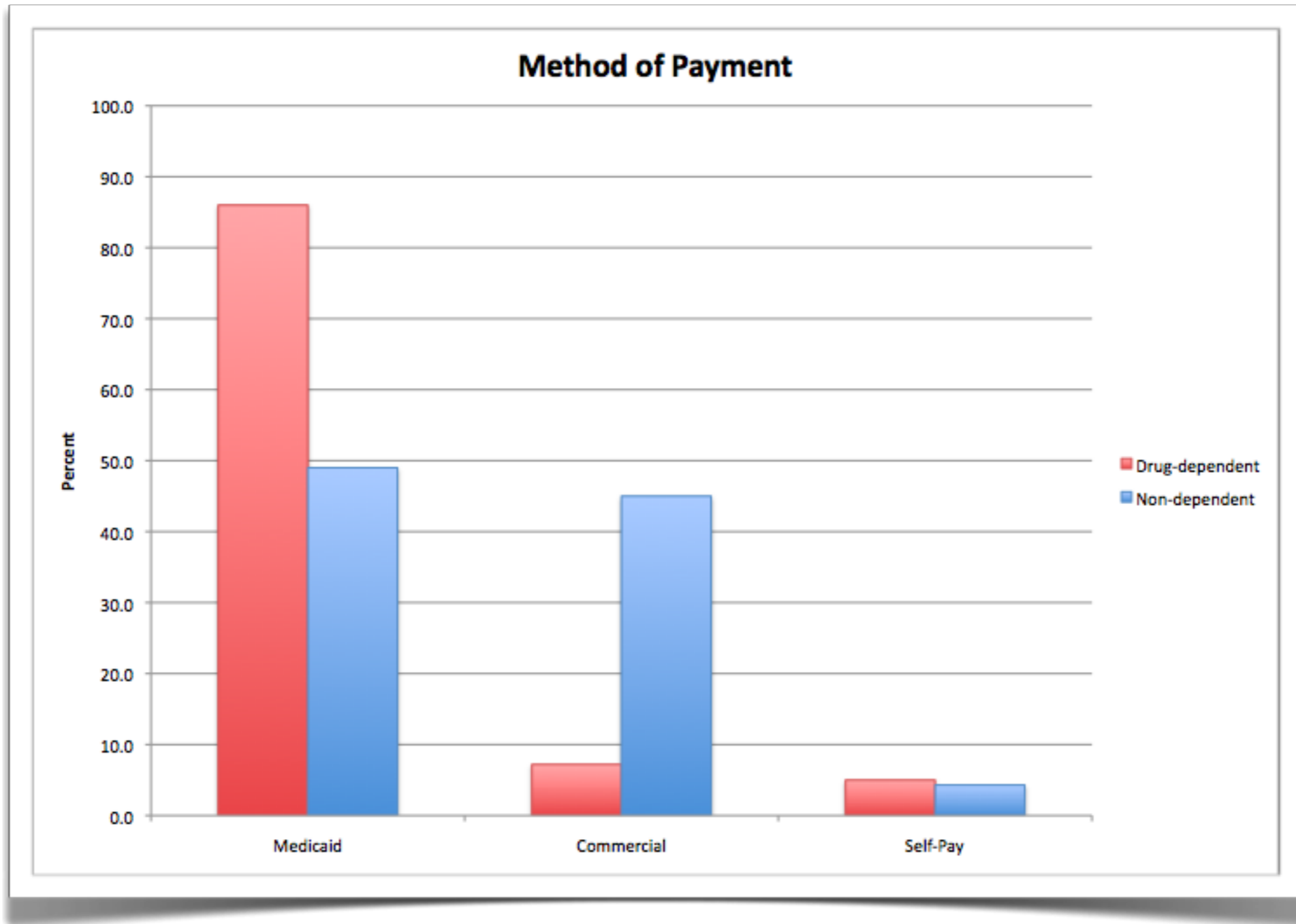
Picture of Addiction:race



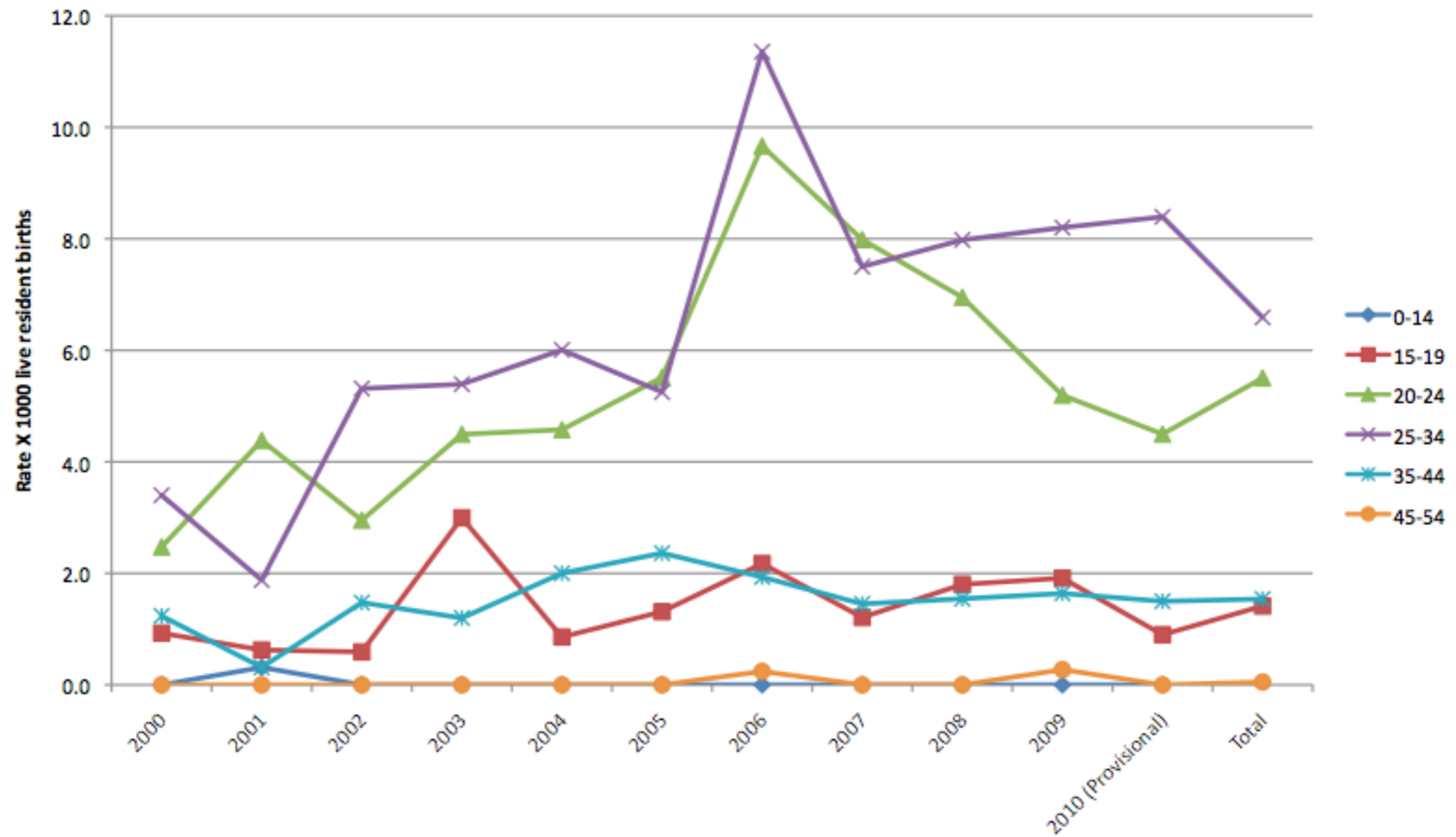
Picture of Addictionage



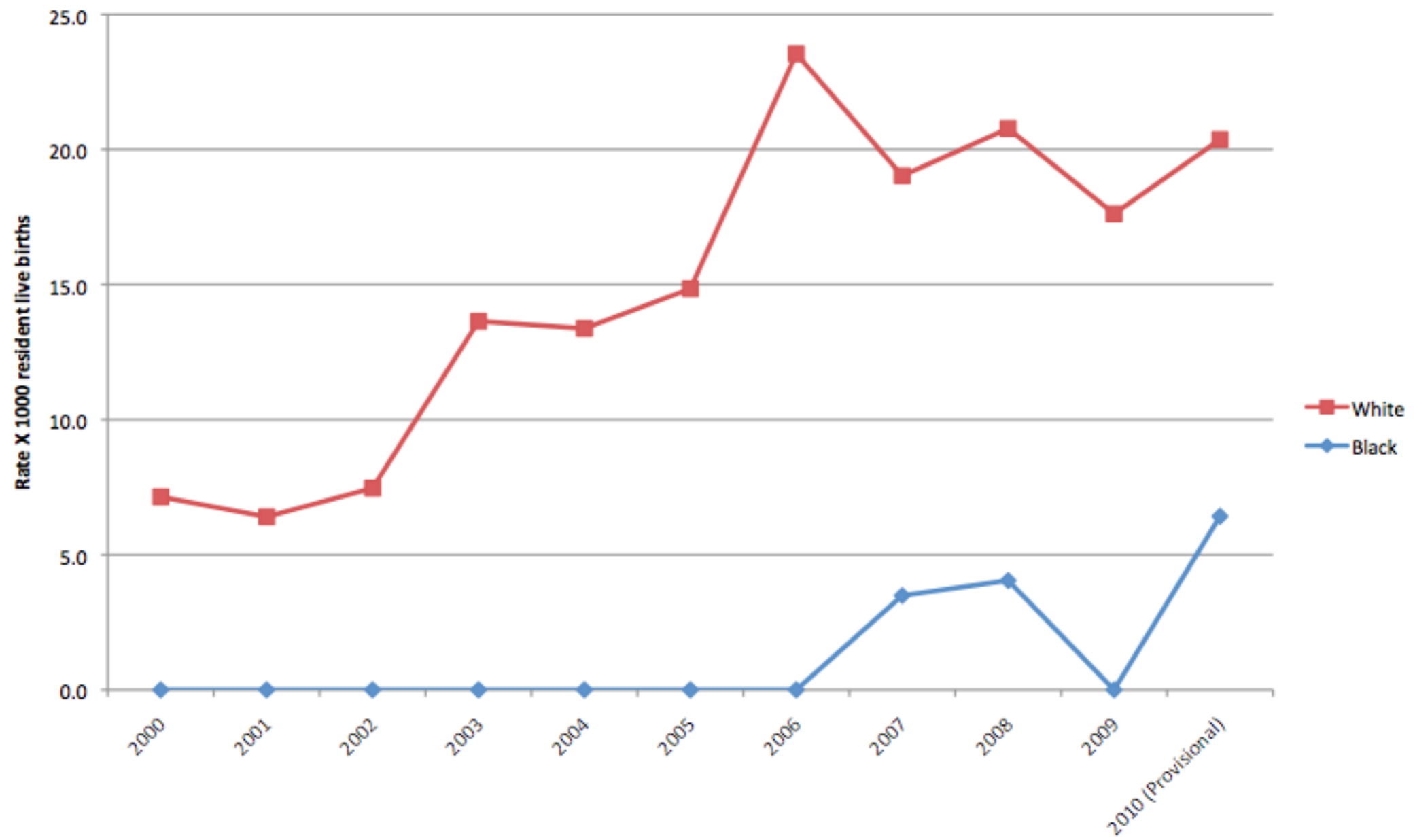
Who's paying?



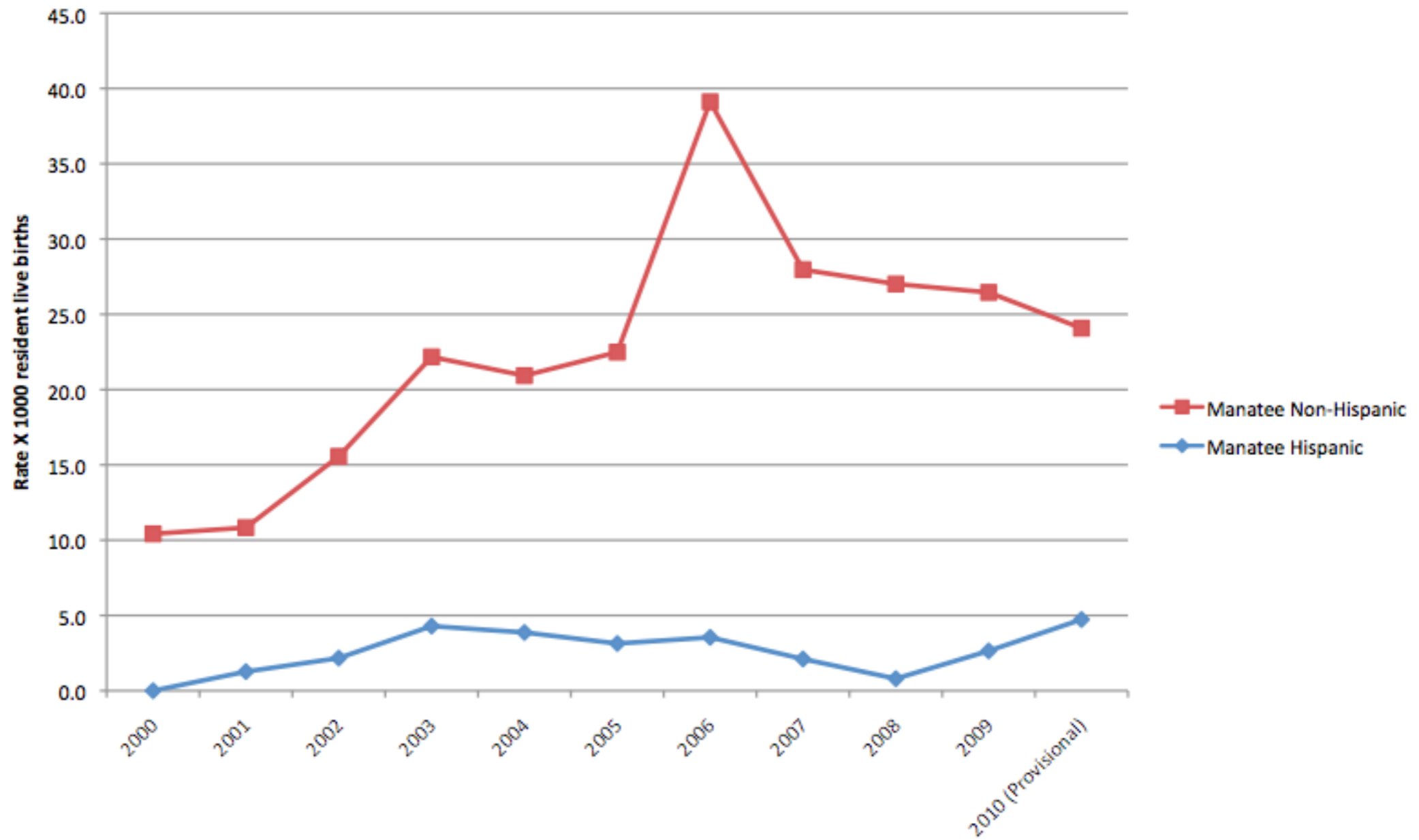
Age-specific Rate of Maternal Drug Dependence Diagnosis at Delivery, Manatee County, 2000-2010



Rate of Maternal Drug Dependence Diagnosis by Race, Manatee County, 2000-2010



Rate of Maternal Drug Dependence Diagnosis at Delivery by Ethnicity, Manatee County 2000-2010



Infant Data

- Sample
 - All Sarasota & Manatee County resident births
 - n=64,633
- Inclusion Criteria
 - AHCA hospital record ICD-9 admission code of birth from 2000-2010
- Case ascertainment
 - ICD-9 Diagnosis code of Neonatal Abstinence Syndrome (NAS)
 - *779.5-Drug withdrawal syndrome in newborns*
 - *760.7-Noxious influences affecting fetus or newborn*
 - *292.0-Drug withdrawal syndrome*

Neonatal Abstinence Syndrome (NAS)



Facts about NAS

- Occurs in 50-95% of infants who are prenatally exposed to illicit substances
- NAS is highest among opiate-exposed infants
- Type of drug, duration of use, intensity of use, & gestational age of infant influence NAS
- Duration can last between 2-3 days up to 8 weeks
- Symptoms can appear within 1-3 days after birth but may take up to 5-10 days to appear

Kelly, 2000; Huestis & Choo, 2002

Poor birth outcomes

- Preterm birth
- Low birth weight
- Smaller head circumference
- Small for gestational age (SGA)
- Intrauterine growth retardation (IUGR)



Increased risks

- Stillbirth (2X)
- SIDS (5-10X)
- Strabismus (cross-eyes) (10X)
- Congenital abnormalities (2X)
 - congenital heart disease
 - gastroschisis
 - spina bifida



Pathophysiology

- Opiates

- Low molecular weight
- Highly lipophilic
- Readily available across the placental barrier

- Fetus

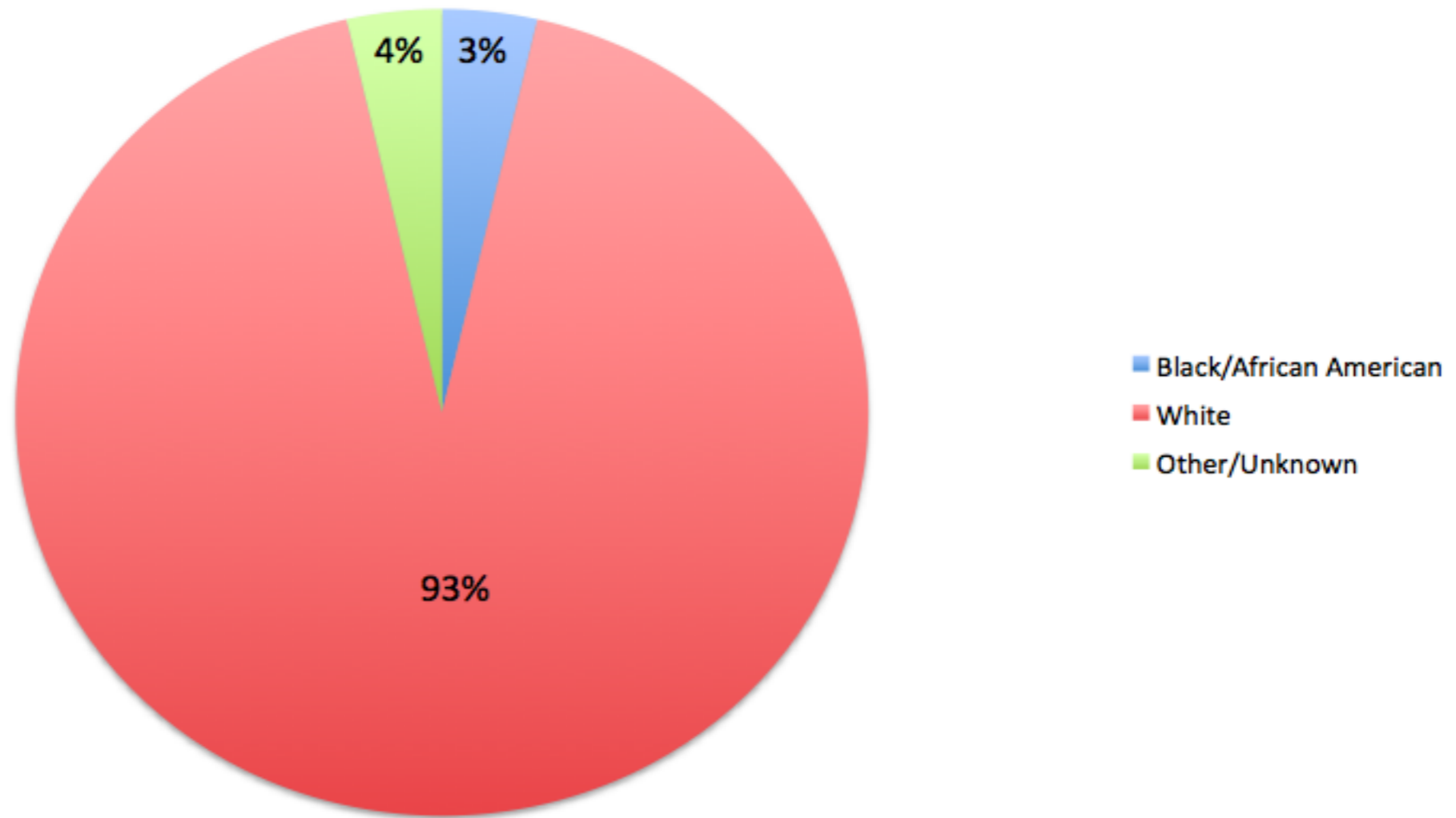
- Immature renal function
- Low levels of metabolic enzymes
- Drug accumulation occurs

Drug use can disrupt normal brain development by affecting neural wiring & circuitry and formation of neural pathways causing sensory and regulatory alterations

Symptoms

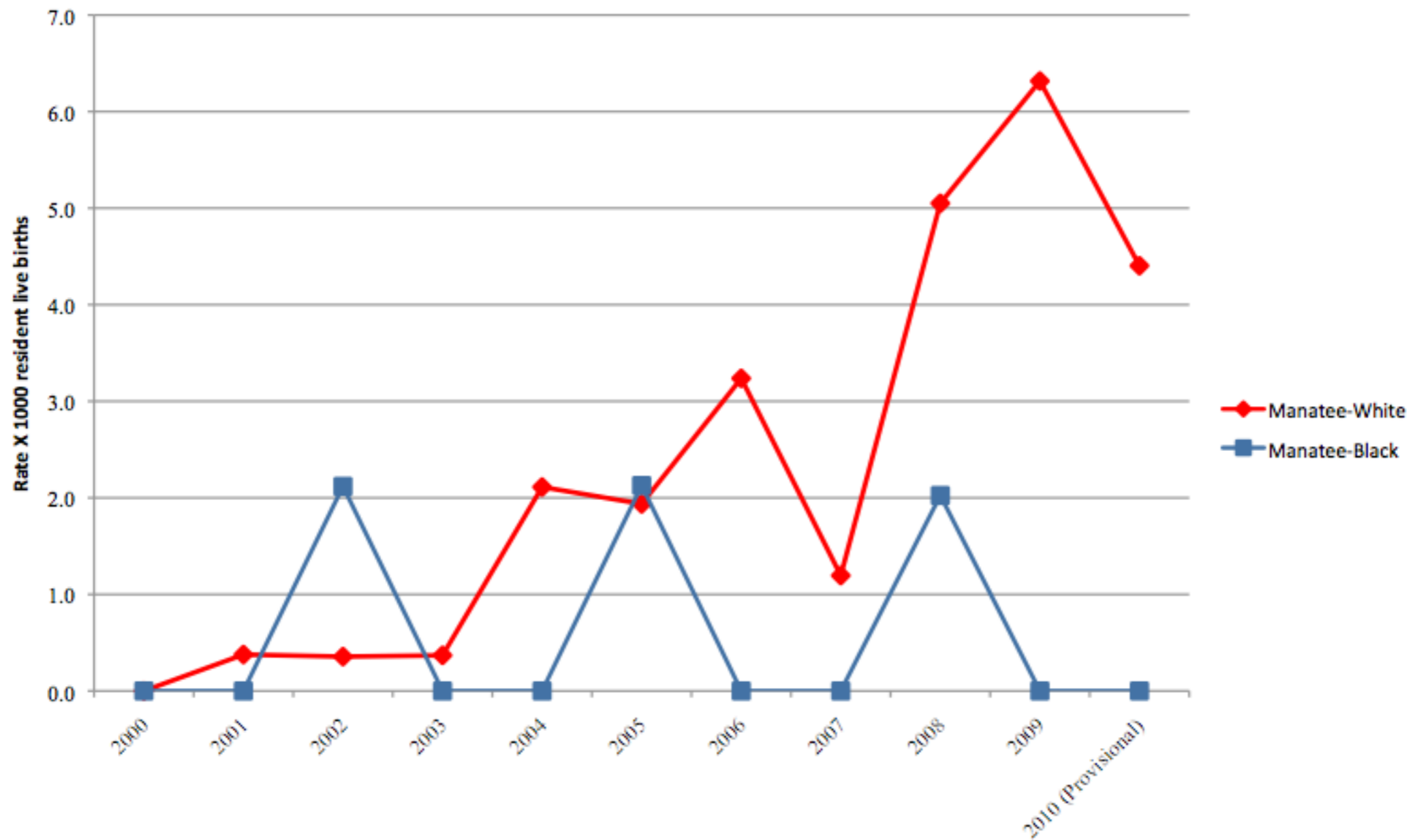
- Inconsolability
- Extreme irritability
- High-pitched crying
- Hyperactive reflexes
- Yawning, sneezing & stuffy nose
- Poor feeding & suck
- Tremors
- Skin irritation
- Poor state lability
- Poor sleep
- Vomiting
- Diarrhea
- Dehydration
- Fever
- Sweating
- Respiratory problems
- Increased muscle tone
- Autonomic dysfunction
- Gastrointestinal dysfunction
- Seizures

Infants Diagnosed with Neonatal Abstinence Syndrome, by Race, Manatee County, 2000-2010



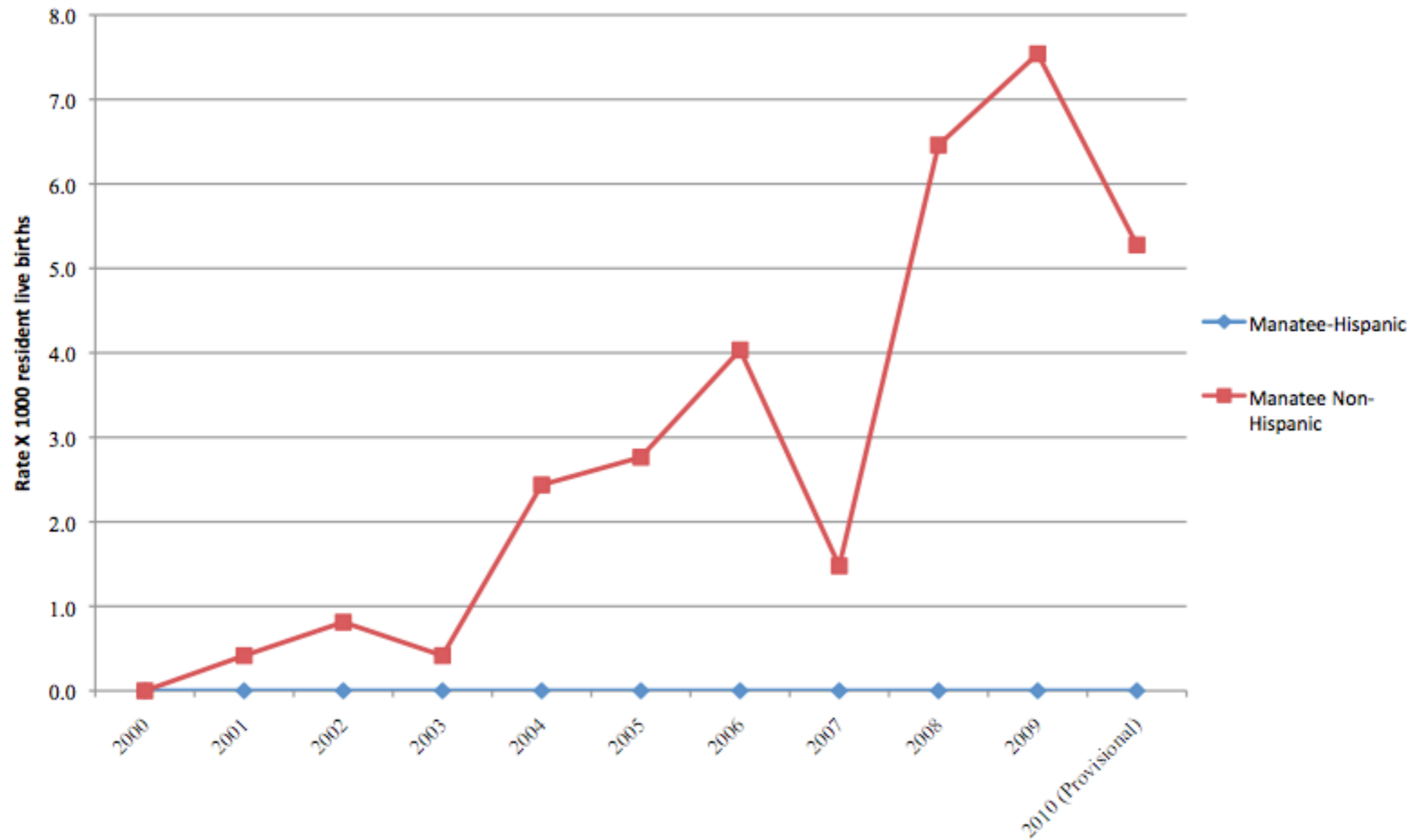
Trends in NAS

Rate of NAS diagnosis at Birth by Race,
Manatee County, 2000-2010

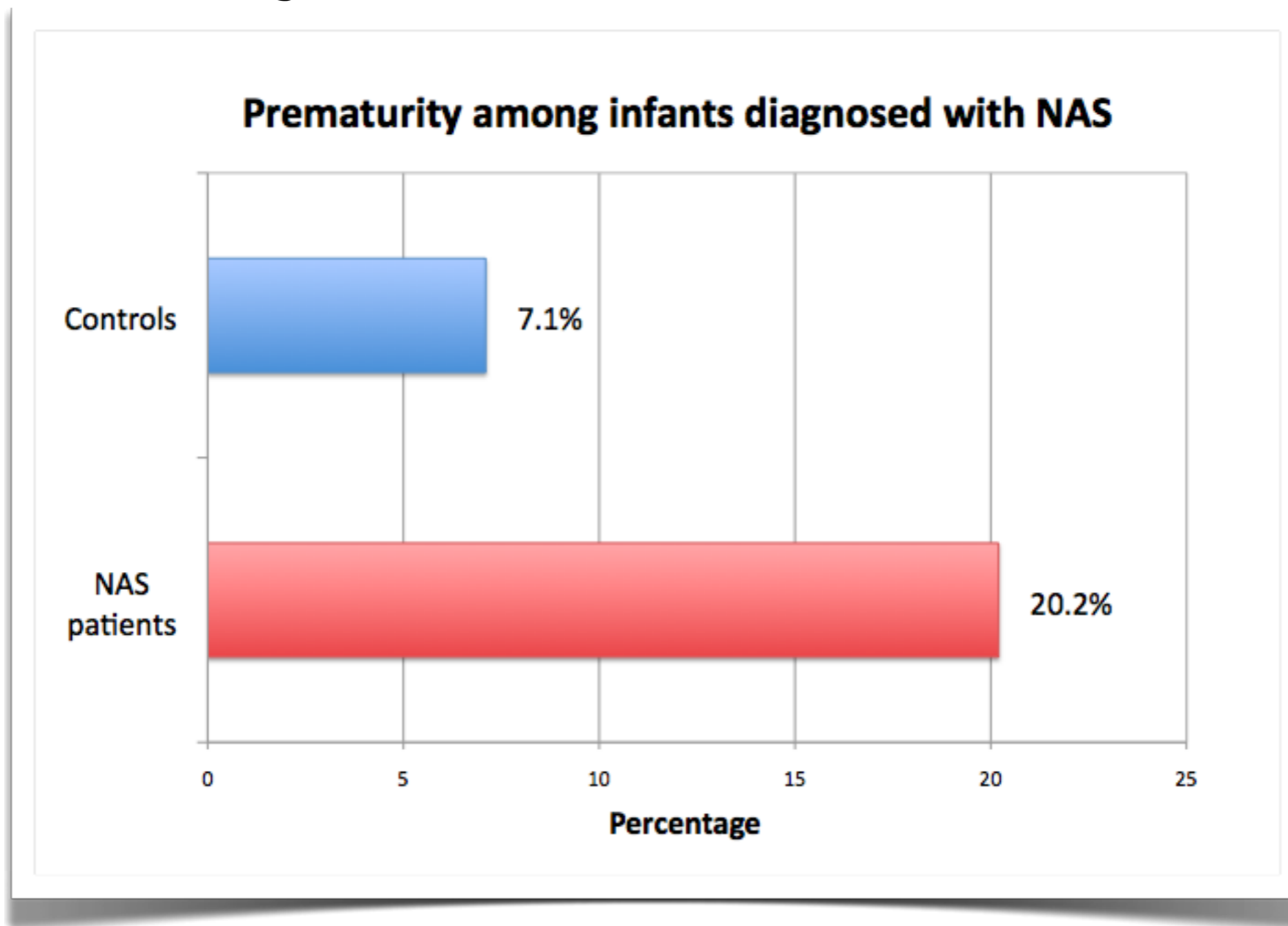


Trends in NAS

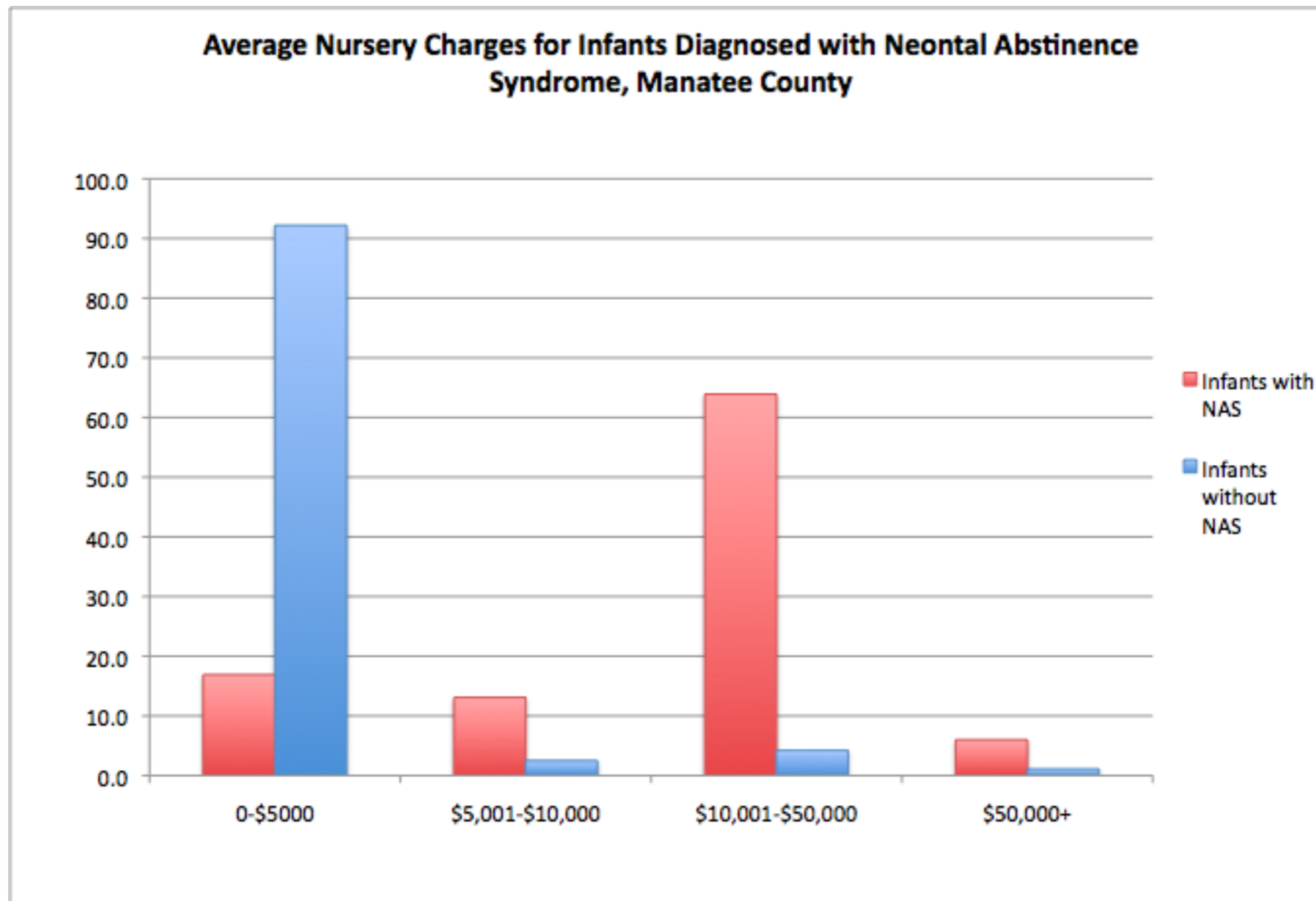
Rate of NAS Diagnosis at Birth by Ethnicity, Manatee County, 2000-2010



Prematurity: a major health concern



Higher costs



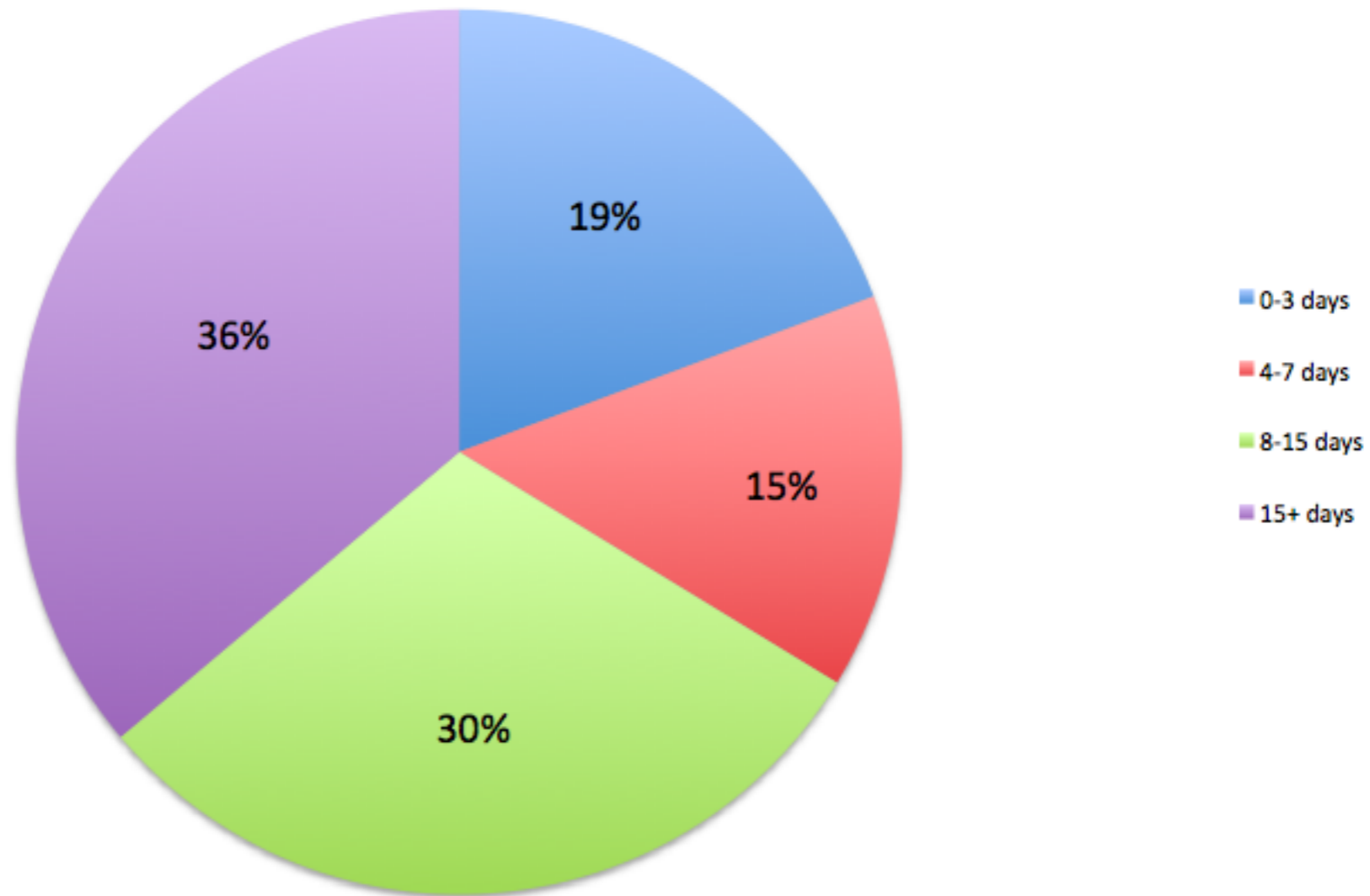
Average cost for a newborn in Manatee
County:
\$3,654

Average cost for an *addicted* newborn:

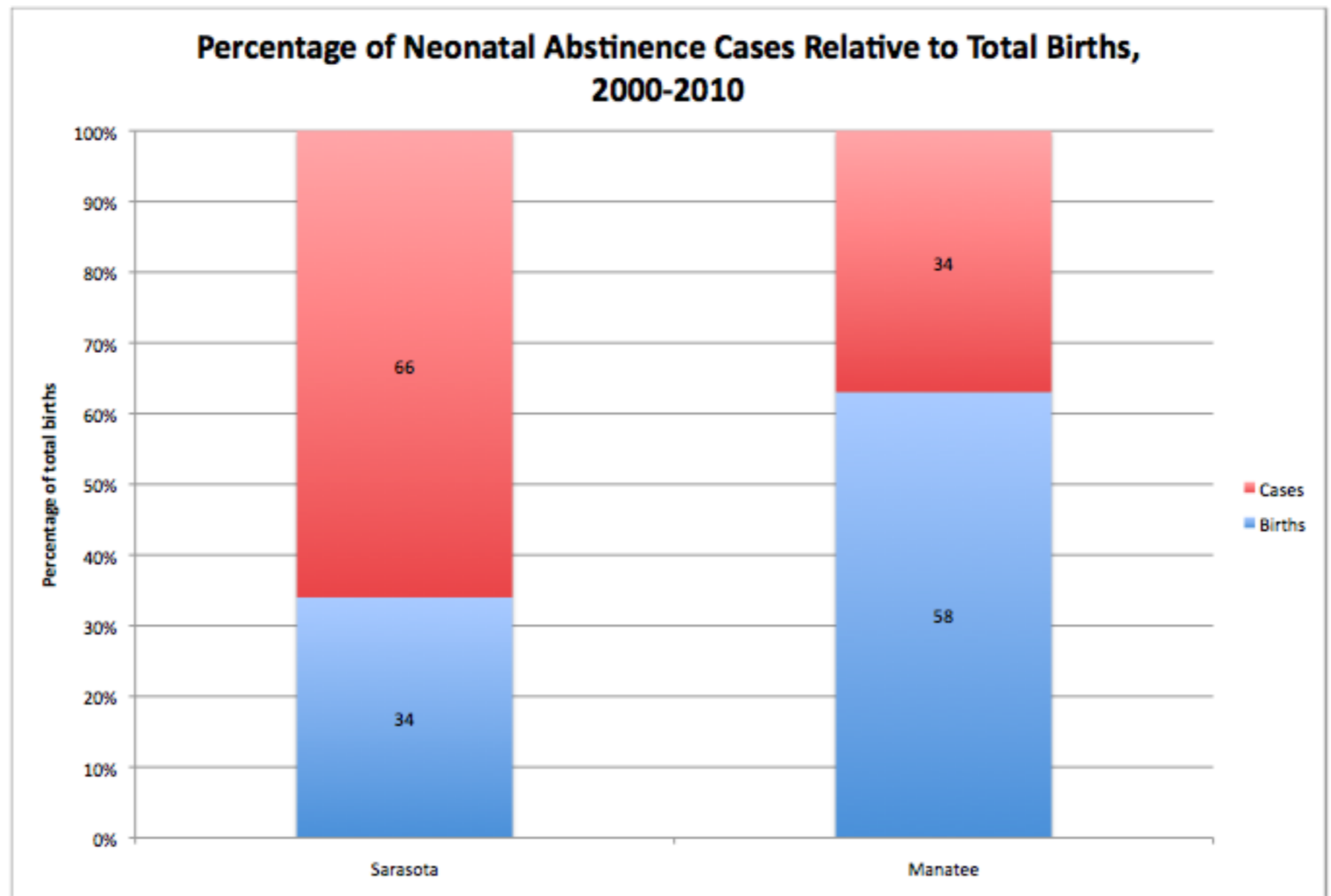
\$ 21,228

Extended hospitalization

Average Length of Stay for Infants Diagnosed with Neonatal Abstinence Syndrome, Manatee County



Sarasota vs. Manatee



Reasons for dramatic increases

- Changing patterns in drug use from street drugs to prescription pills
- Drug availability, multiple pain clinics, high-traffic methadone clinics, pharmacy fraud, physician misconduct
- Racial shifts in drug use
- Gender differences in prescribing practices



- # Breastfeeding
- The American Academy of Pediatrics removed dose restrictions associated with methadone & breastfeeding in 2001
 - NAS may be less frequent and less severe for breastfed infants
 - Breastfed infants discharged an average of 8 days earlier than formula fed infants.
 - $\frac{3}{4}$ of opiate-dependent women do not breastfeed.
 - Those who do quit within one week

Breastfeeding

- Reduces incidence of SIDS
- Increases bonding and soothes baby
- Reduces gastrointestinal maladjustment
- Promotes cognitive development
- Increases social & psychomotor capabilities
- Mother benefits from endorphin effect of breastfeeding

Breastfeeding

- Incompatible with HIV/AIDS patients
- Women who abuse other street drugs are discouraged from breastfeeding
- Certain illnesses and medications are not safe while breastfeeding
- Methadone-only maintained women should be encouraged to breastfeed
- Close monitoring is necessary

Child protection outcomes

- Higher rates of substantiated harm including physical harm and neglect
- Highest rates of harm were during the neonatal period (birth-28 days)
- More likely to be placed in foster care
- Longer treatment plans
- Less likely to be reunified

Infant & toddler outcomes

- Neurodevelopmental problems
 - short attention span
 - hyperactivity
 - sleep disturbances
- Mild memory and perceptual difficulties
- Increased susceptibility to adverse environmental influences

Preschool-age outcomes

- Lower developmental scores
- Less age-appropriate play
- Greater impulsivity & distractibility
- Less secure attachment
- Delayed language development
- Lack of ability to tolerate frustration
- Difficulty organizing behavior

Environment

- Histories of chaos, trauma, abuse, and substance use in families of origin
- Seek to fulfill unmet childhood needs thru relationship with child and then feel rejected when expectations are not met
- Inadequate parenting, abuse, and neglect likely
- Lower education, lack of stable work, and criminal history contribute to environmental stress
- Many mothers unable to meet child's basic needs

Conclusions

- The rate of women who abuse prescription drugs and the effects on infants is growing exponentially
- Mental illness plays a major role in drug use
- Many addicted women have been abused or traumatized in some way

Conclusions

- NAS is most common with opiate use
- Over 20% of NAS babies are premature.
- Children prenatally exposed to drugs are developmentally challenged by poor birth outcomes & compromised regulatory functions
- Many new mothers are not equipped with the knowledge & resources to properly care for their drug-exposed infants

Recommendations

- Earlier identification and referral to Healthy Start for methadone maintained women
- Provision of comprehensive, compassionate prenatal care
- Encourage contraception among drug-addicted women on methadone therapy
- Encourage smoking cessation counseling among methadone-maintained pregnant women
- Encourage breastfeeding as recommended by AAP for women being treated with methadone
- Proper baby-care instruction for caring for newborn with NAS
- Encourage contraception among drug-addicted women on methadone therapy



Thank you
questions, comments &
feedback welcome
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