

**FOCUS/Milagro**  
**Centers of Excellence:**  
**Medical Home Model for Pregnant**  
**and Parenting Women with**  
**Substance Use Disorders**

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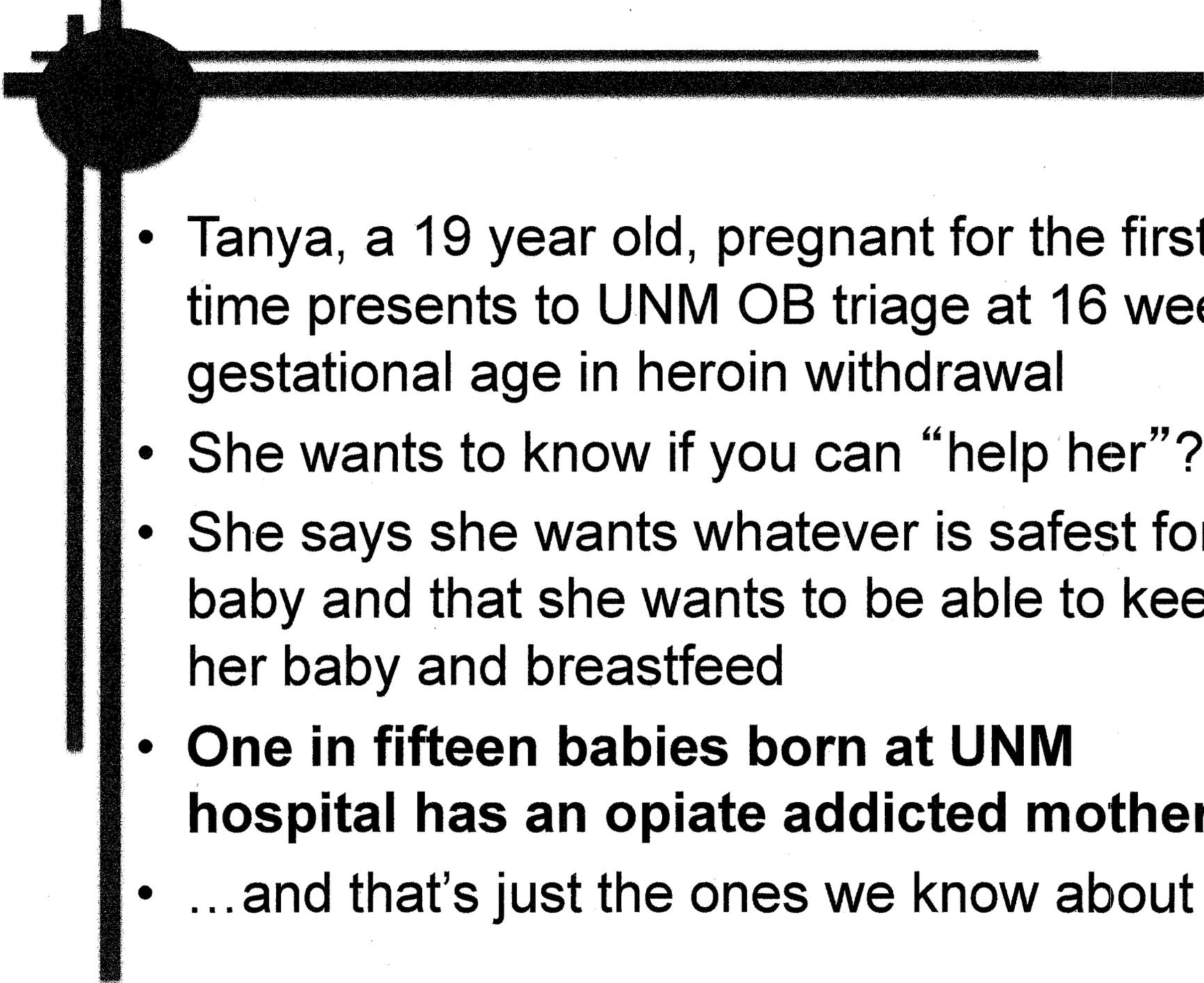
Lawrence Leeman, MD, MPH

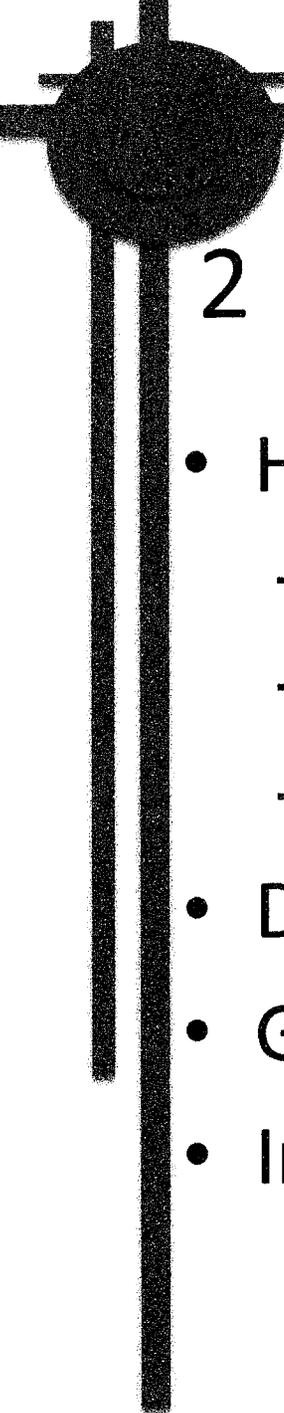
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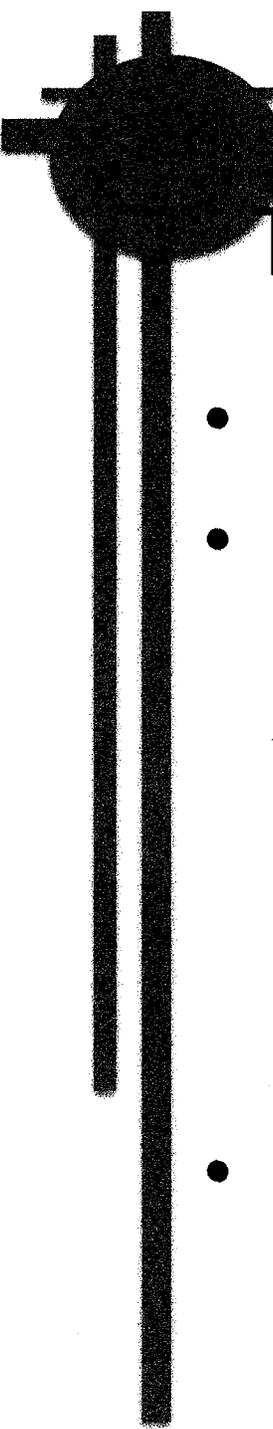
Centers for Development and Disabilities

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- Tanya, a 19 year old, pregnant for the first time presents to UNM OB triage at 16 weeks gestational age in heroin withdrawal
  - She wants to know if you can “help her”?
  - She says she wants whatever is safest for baby and that she wants to be able to keep her baby and breastfeed
  - **One in fifteen babies born at UNM hospital has an opiate addicted mother**
  - ...and that’s just the ones we know about



## 2 Brains Helped in the Medical Home

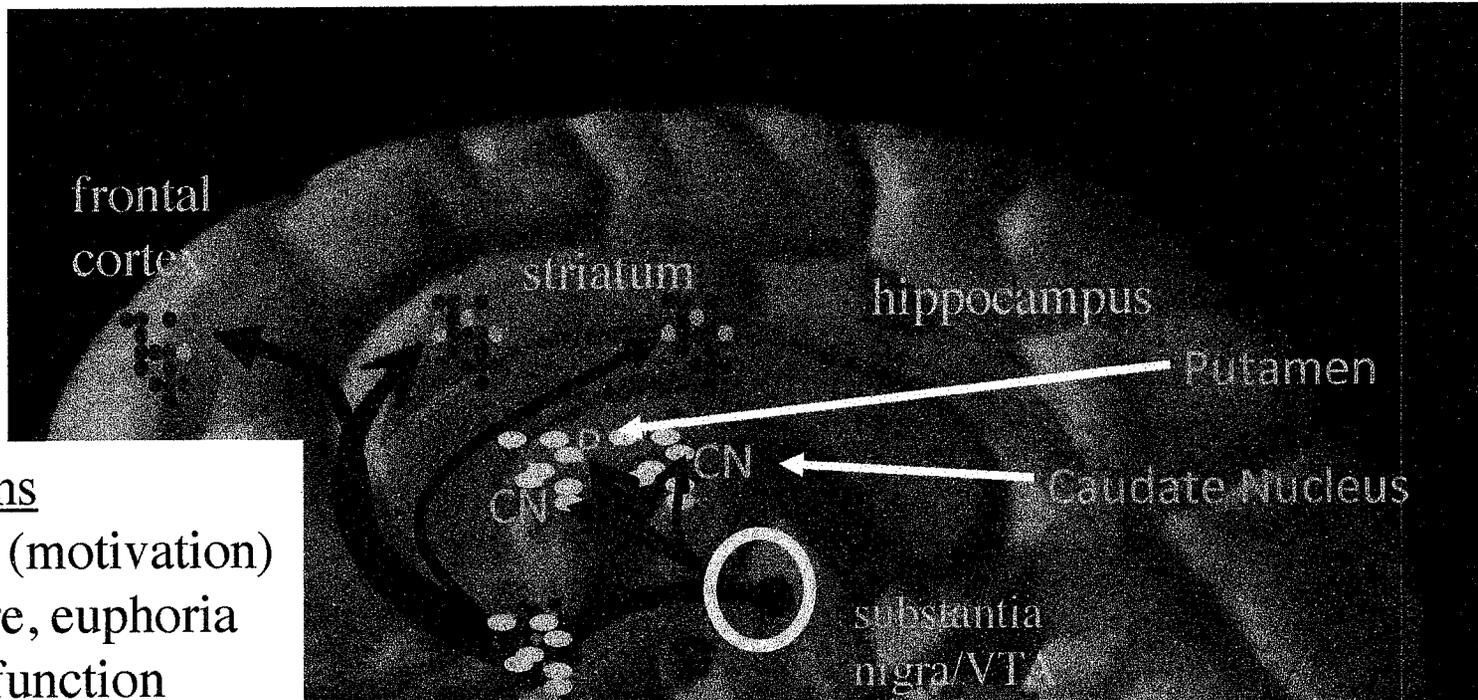
- Helping Tanya means drug treatment
  - Greater chance of good pregnancy health
  - Reduced chance of premature birth
  - Prevents inadequate fetal growth
- Delivery at term (9 mos.) protects infant brains
- Good growth means better brain growth
- Improved brain neurotransmitter regulation



# Tanya's Heroin Use Alters Fetal Brain

- If untreated brain growth slowed
- Heroin (opioid drugs) bind opiate receptors
  - Binding opiate receptors reduces pain
  - Affects another neurotransmitter chemical
    - Dopamine sensitive nerves related to euphoria
    - Euphoria blunts pain response
  - Overuse of opioids reduces dopamine effect
- Exposure to fetal brain may affect learning

# Dopamine Pathways



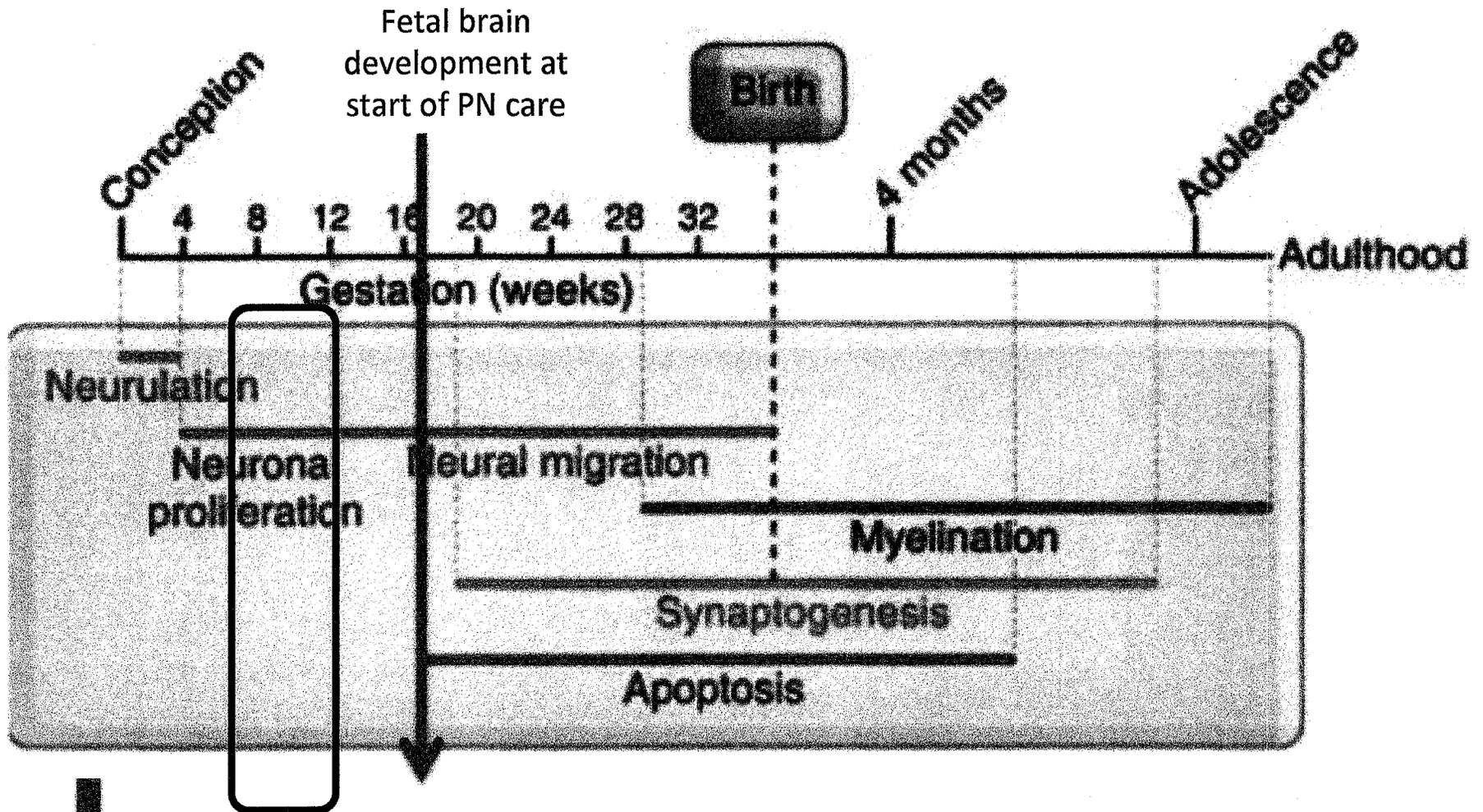
## Functions

- reward (motivation)
- pleasure, euphoria
- motor function  
(fine tuning)
- compulsion
- perseveration

## Functions:

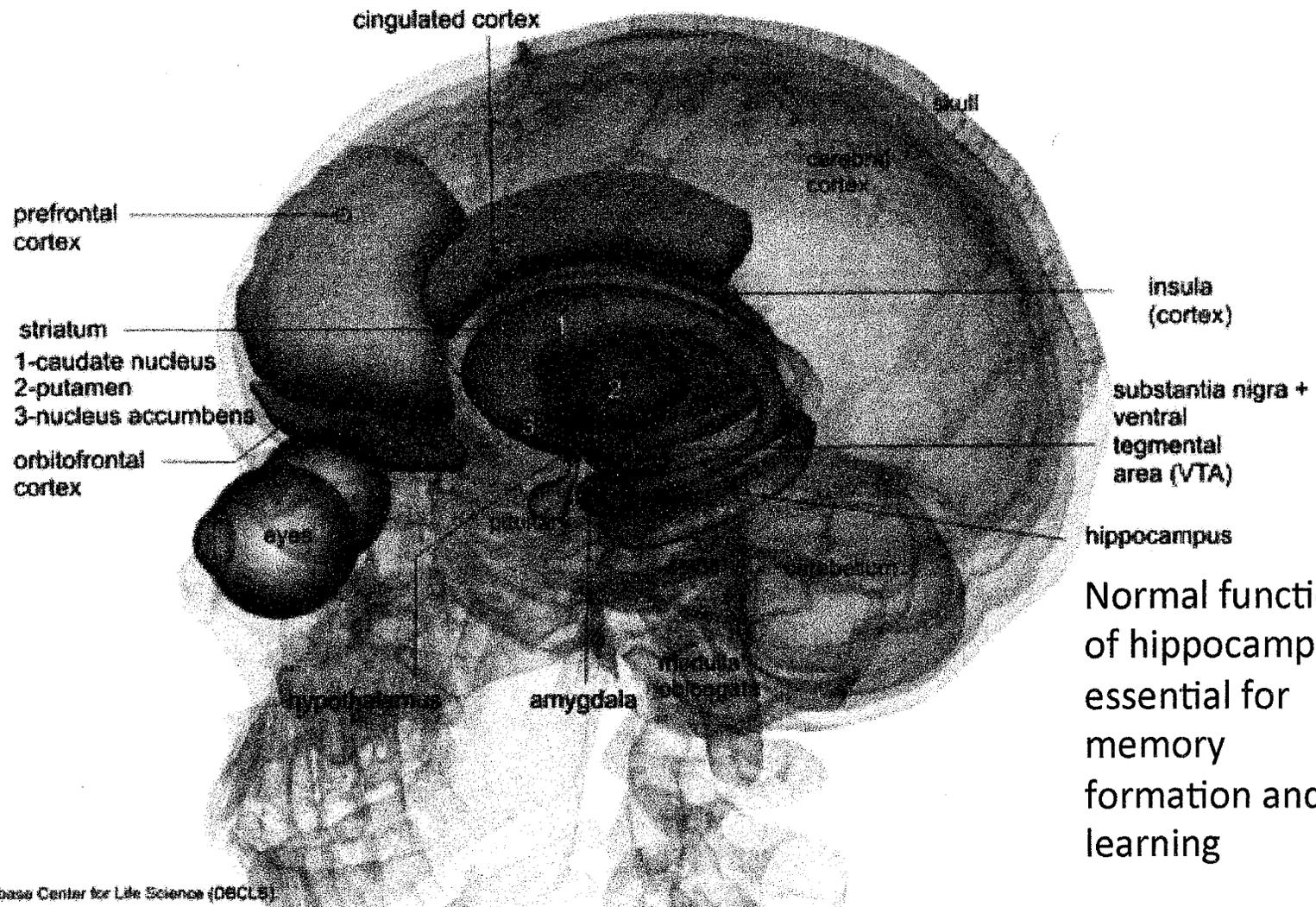
- Control of thalamic areas
- Thalamic areas affect cortical signals
- Lower inhibition of motor signals
- Loss of movement control
- Tremors, rigidity not inhibited

# Critical Periods for Brain Processes

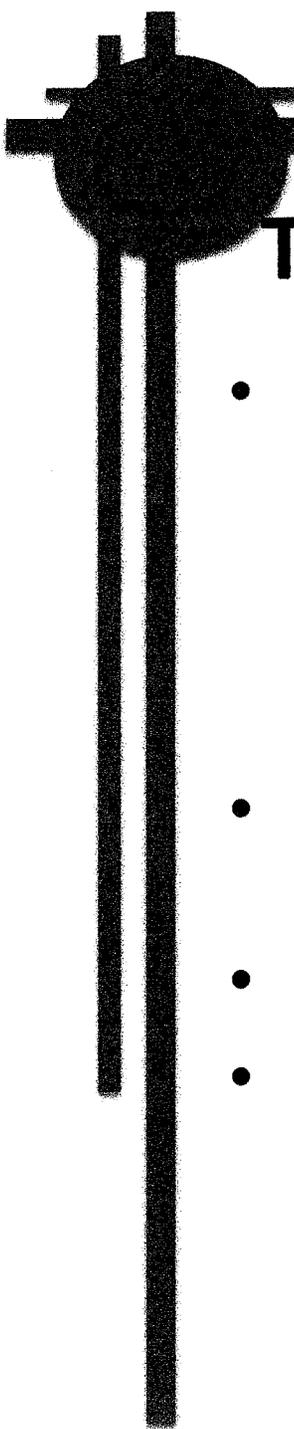


Time frame for appearance of neurons that respond to dopamine

# Dopamine Pathways and Learning

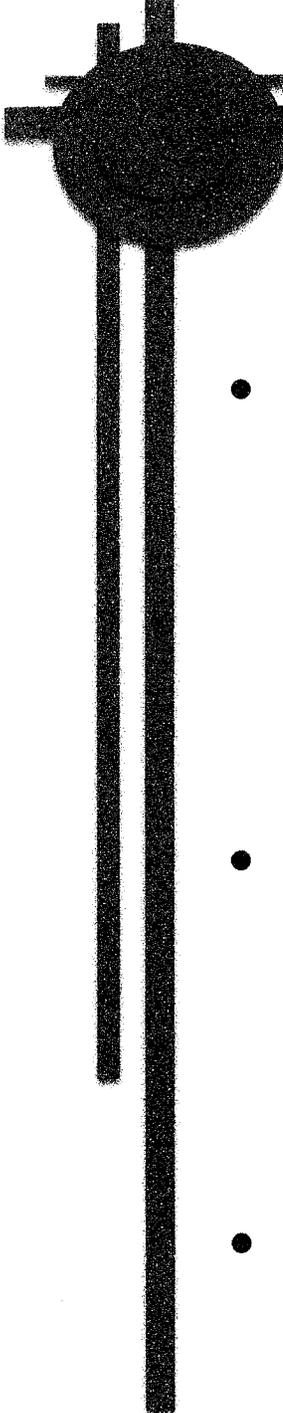


Normal function of hippocampus is essential for memory formation and learning



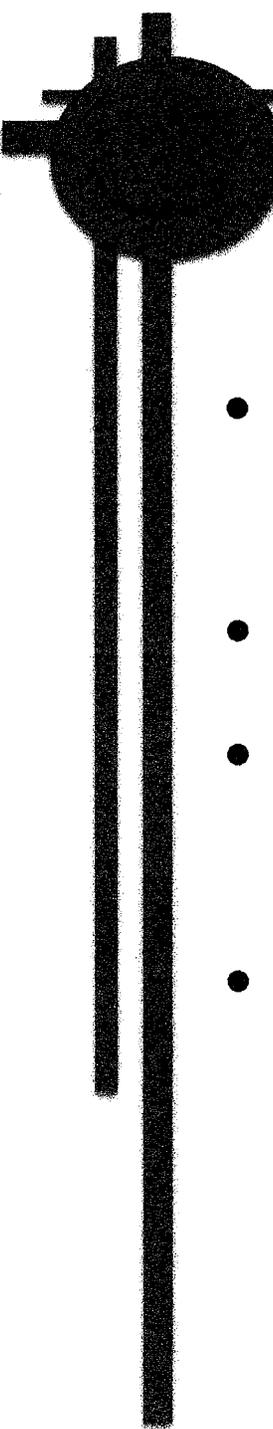
# The Science; Humans are Born Learning

- From minutes old babies respond to others
  - use the emotions and actions of others to inform what they themselves do
  - earliest forms of reaction is social imitation
  - infants are learning every minute, in every interaction
- Infants alter their actions based on the emotions that they observe between other people
- Early emotional connections essential for learning
- Problems generating appropriate reactions if brain is out of regulation



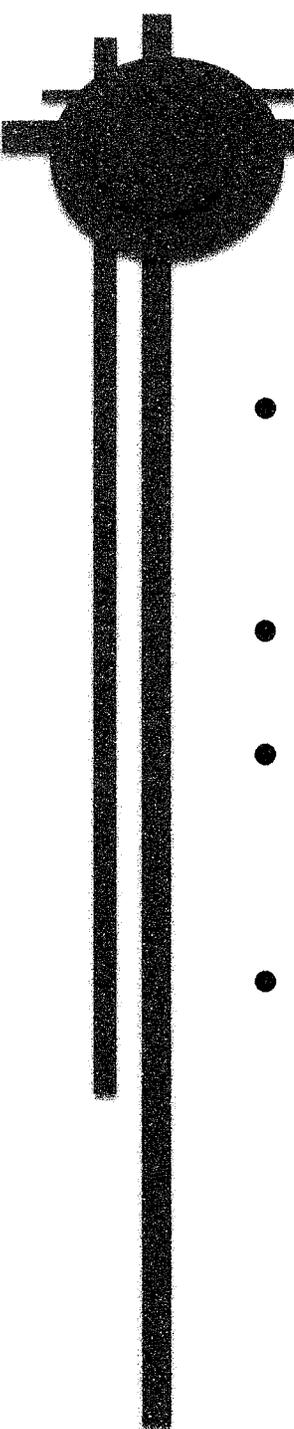
# Interventions Target 2 Brains

- Normalized early childhood development
  - No brain injury from premature birth
  - Close to normal brain growth
  - Stabilized neurotransmitter environment
  - Anticipated early developmental services
- Adult development and maturation
  - Recovery from substance use disorder
  - Mental health care; treatment of depression
  - Counseling to address psychological triggers
- Normalized parent-baby emotional regulation



# Who is Tanya?

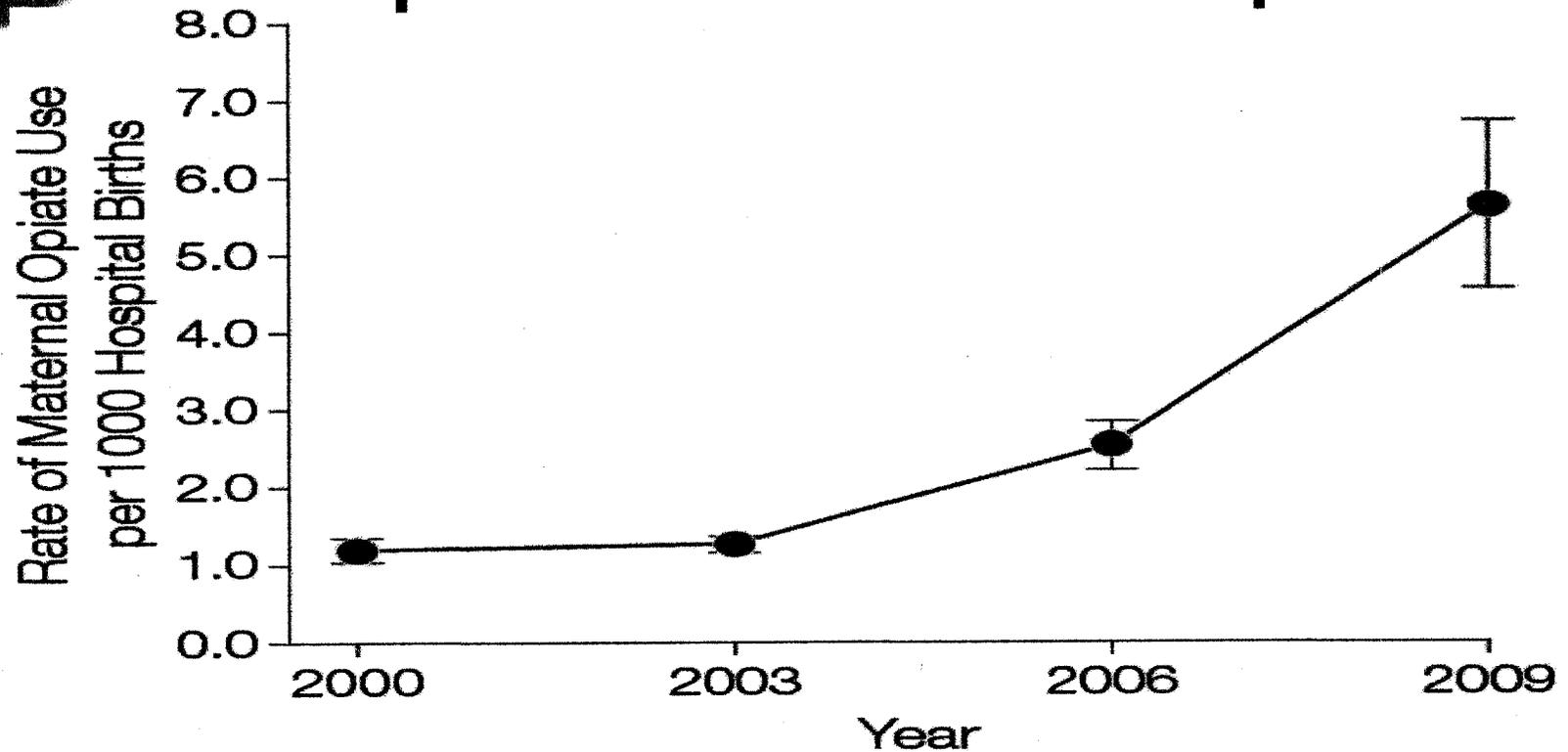
- Her mother is an ex-heroin addict now on methadone
- Her father died from drug related violence
- She started using prescription opiates at high school parties at age 14
- With her escalating oxycodone use she had trouble paying for the pills.



## Tanya's oxycodone habit

- With her rising price of prescription narcotics she could not maintain her habit
- She dropped out of school
- Her cousin told her how much cheaper heroin was
- At age 16 older men would give her heroin in exchange for sex

# Epidemic of maternal opiate use

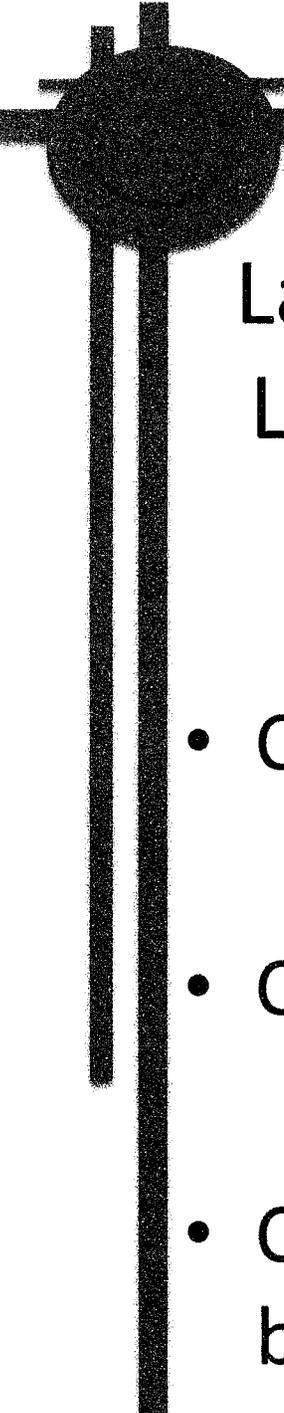


Antepartum maternal opiate use increased from 1.19 (95% CI, 1.01-1.35) to 5.63 (95% CI, 4.40-6.71) per 1000 hospital births per year ( $P < .001$ ) from 2000 to 2009

Neonatal Abstinence Syndrome and Associated Health Care Expenditures: United States, 2000-2009

JAMA 2012; 307(18)

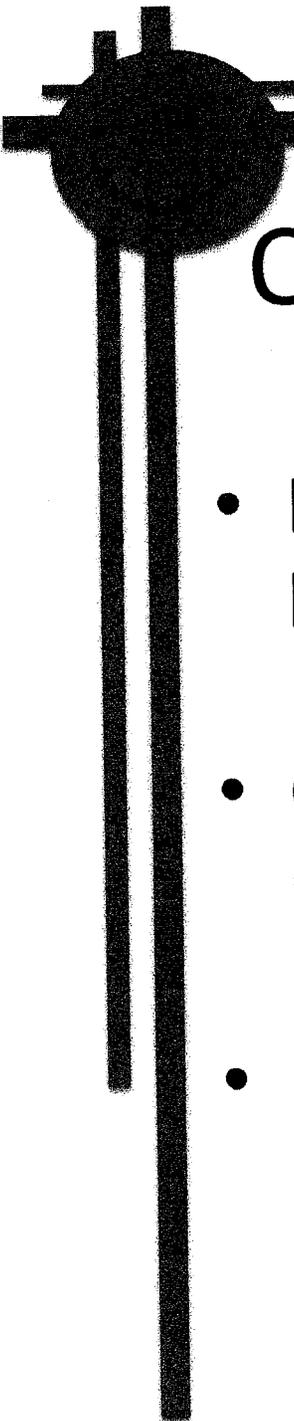
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## Last Year Tanya Tried to Find Treatment

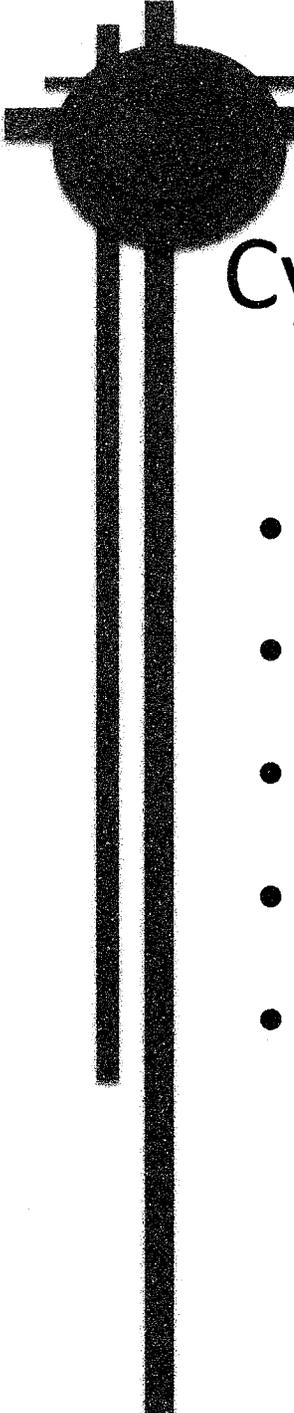
Low availability of treatment for opiate addiction for non pregnant women

- Calls UNM ASAP : 6-12 month wait
- Calls First Choice: Placed on waiting list
- Calls Primary Care clinics: No one who offers buprenorphine is accepting new patients



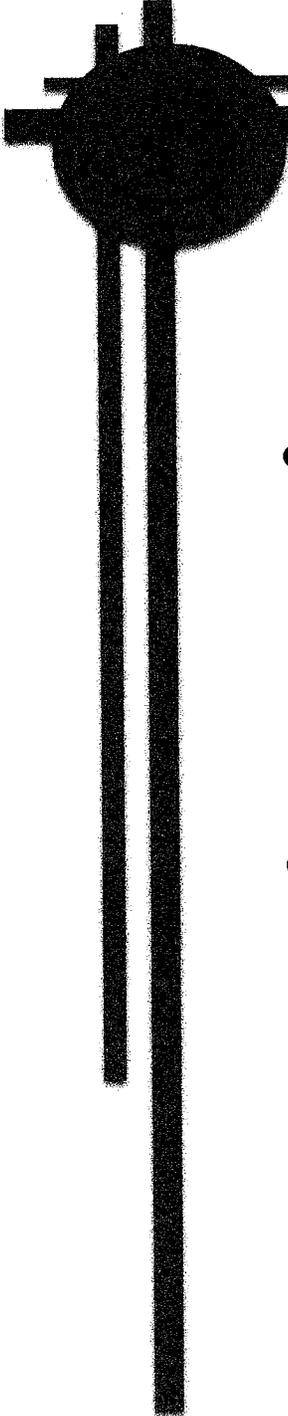
# Opioid use in pregnant women

- Heroin associated with growth restriction, preterm birth, STDs, polysubstance abuse
- Cessation of opioid use may have adverse effects of withdrawal and rarely successful
- Methadone or buprenorphine maintenance recommended in pregnancy



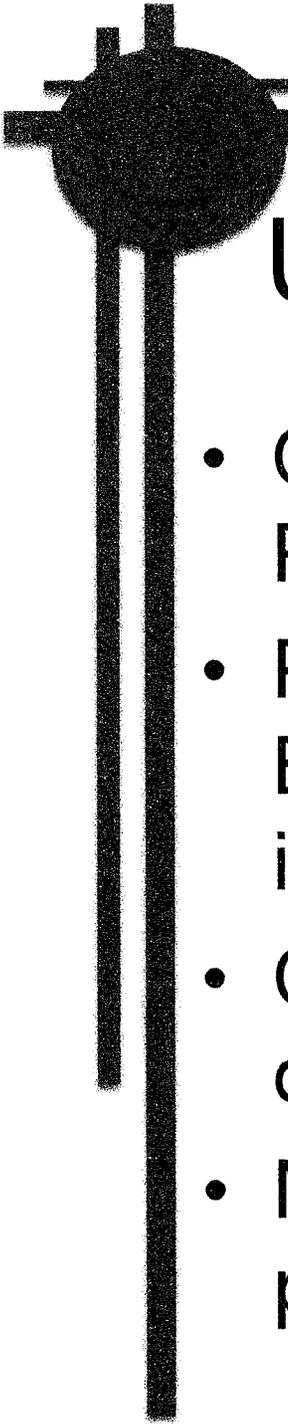
# Cycles of addiction across families and time

- Lack of nonsubstance abusing role models
- Child abuse and neglect
- Sexual trauma
- Mood disorders
- Lack of mental health, substance abuse and primary care resources



## Tanya starts on buprenorphine

- Admitted for 24 hrs as in acute withdrawal from heroin but outpatient was another option
- Sent home on 16 mg not in withdrawal and with a prescription until her Milagro appt in 5 days



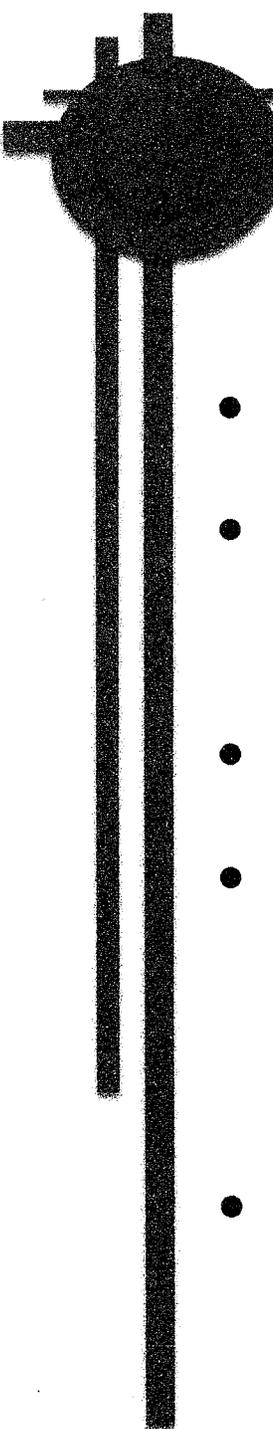
# UNM Milagro/Focus Program

- Collaboration of UNM Family Medicine, Pediatrics, Ob/Gyn, and Psychiatry/ASAP
- Prenatal care, Substance abuse counseling, Buprenorphine treatment and Well Child Care in same Patient Centered Medical Home
- Case management starts in pregnancy and continues until child 3 years old
- Methadone administered by UNM ASAP program



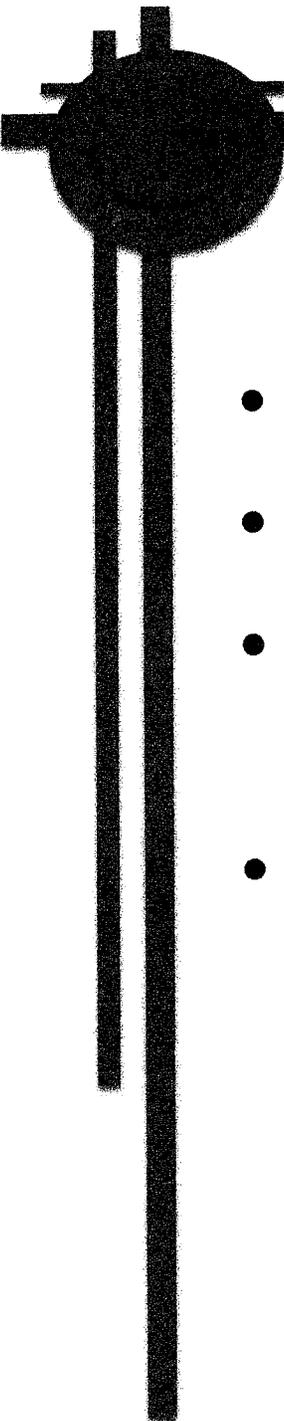
# Milagro/FOCUS as medical home

- Intake with Milagro Nurse
- Meets outpatient substance abuse counselor in clinic
- Prenatal care initiated
- Meets FOCUS manager: enrolled for planned ongoing well child, developmental care and case management until youngest child age 3
- Buprenorphine prescribed in Milagro & FOCUS
- Postpartum contraception



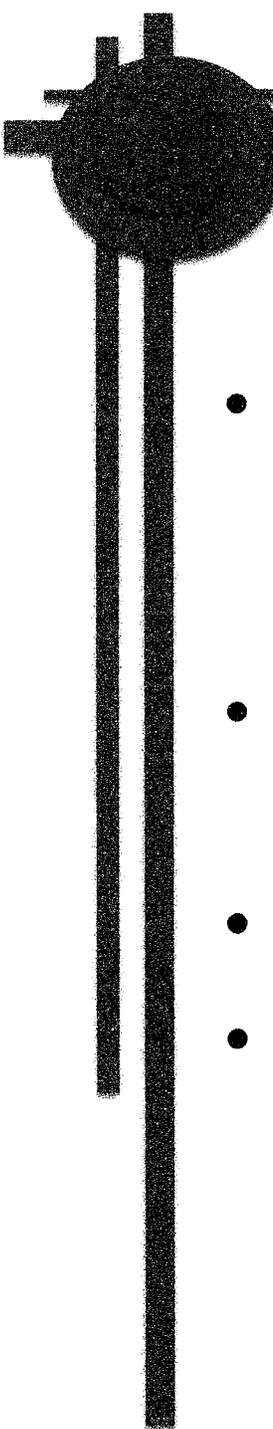
## Prepare for birth

- Encourage breastfeeding when appropriate
- Readdress the 96 hr. observation and NAS tx if needed
- Discuss rooming in option
- Encourage Long acting reversible birth control methods prior to discharge if interested
- Discuss labor pain issues



## Tanya delivers at term

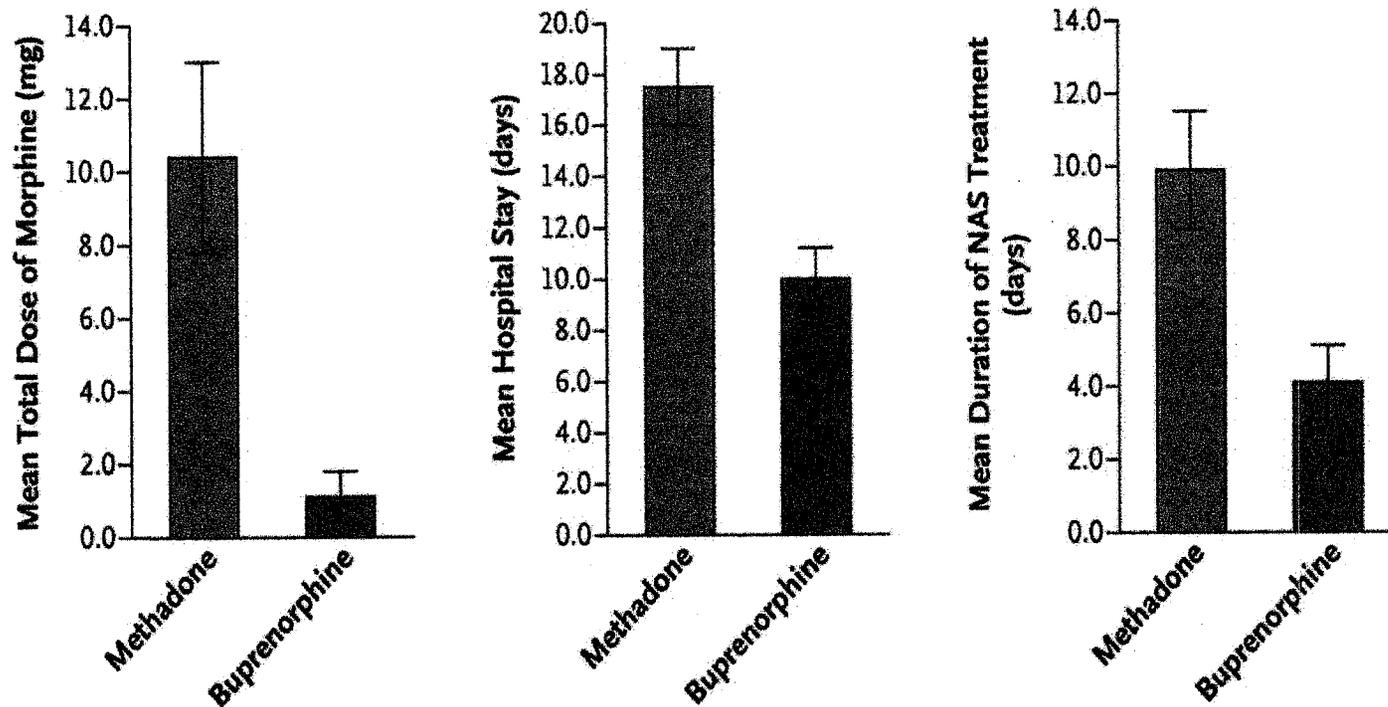
- Continued on buprenorphine in labor
- Epidural for pain relief
- Able to support breastfeeding as she is no longer abusing opiates
- Baby watched for 4 days but then able to discharge home



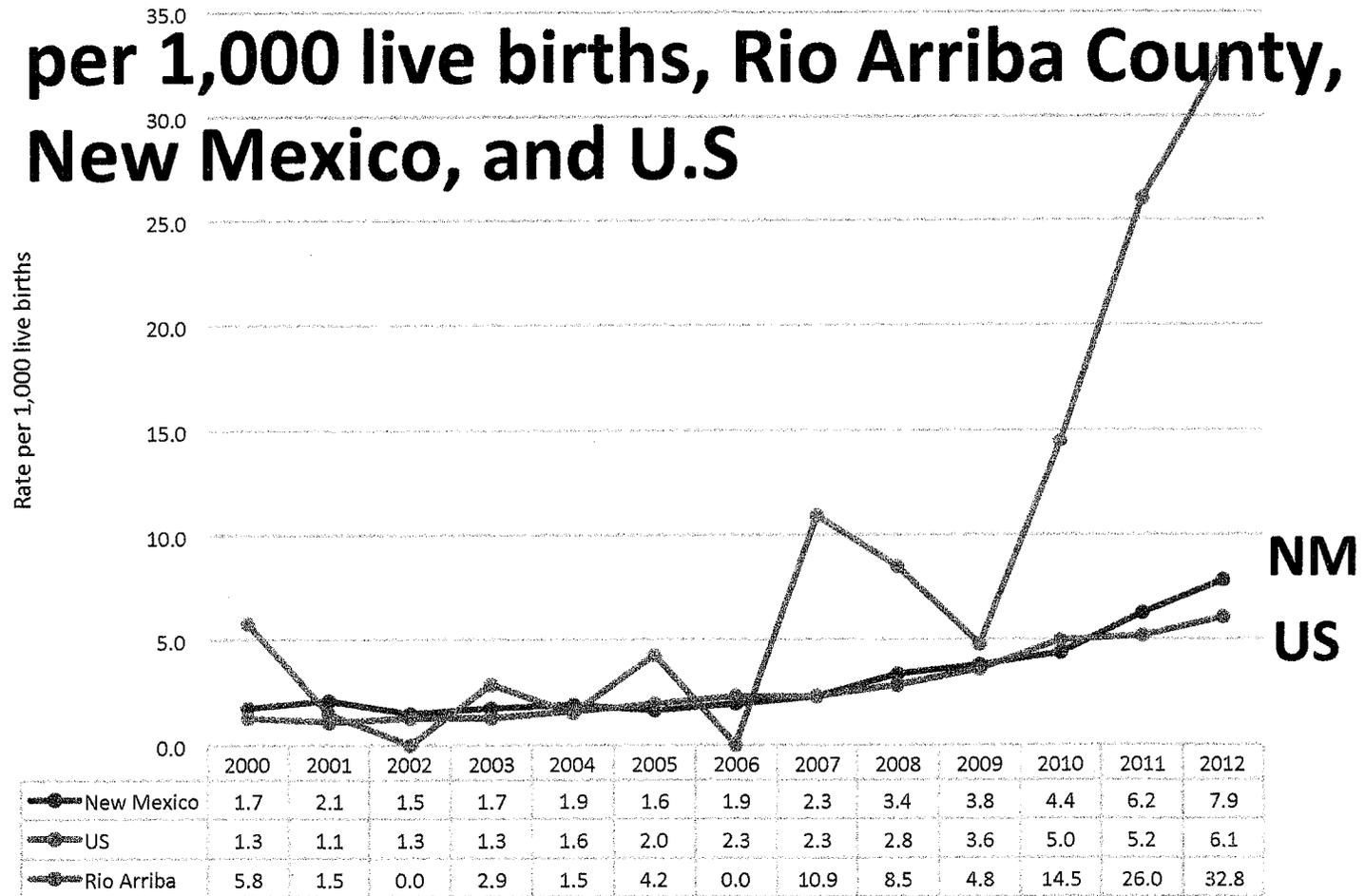
# Neonatal Abstinence Syndrome

- Withdrawal syndrome in infants chronically exposed to maternal substance abuse
- Opiates most common substance implicated in NAS in US hospitals
- Behavioral and physiological signs
- Gastrointestinal and neurological problems  
Poor weight gain due to combination of increased caloric needs and poor feeding

# Mean Neonatal Morphine Dose, Length of Neonatal Hospital Stay, and Duration of Treatment for Neonatal Abstinence Syndrome

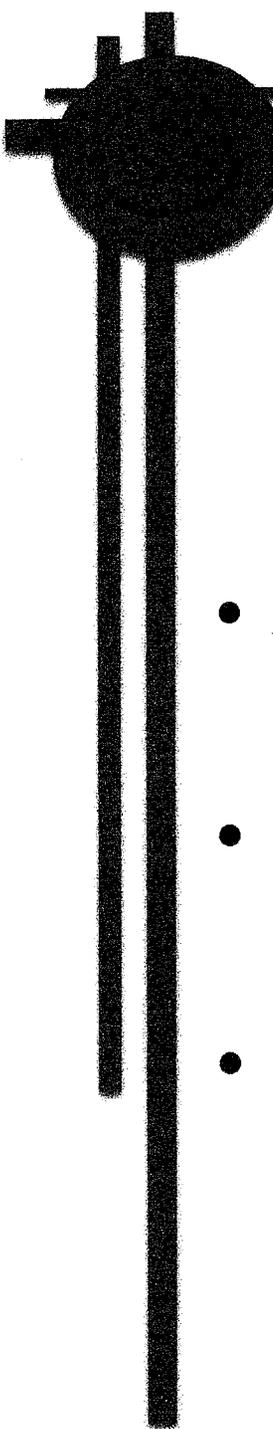


# Rate of Neonatal Abstinence Syndrome per 1,000 live births, Rio Arriba County, New Mexico, and U.S



**Sources:**

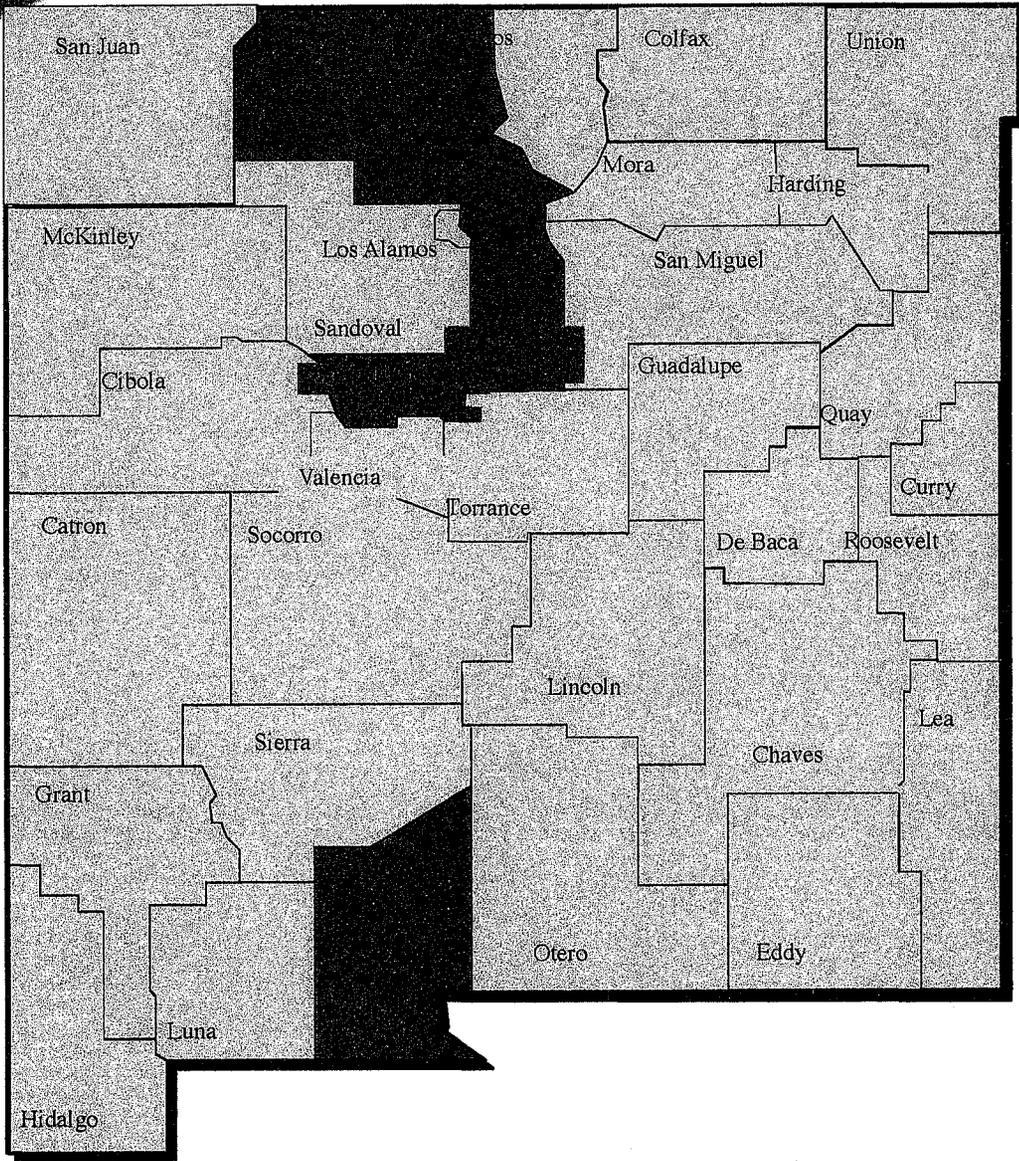
US: Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2000, Agency for Healthcare Research and Quality (AHRQ), based on data collected by individual States and provided to AHRQ by the States. Total number of weighted discharges in the U.S. based on HCUP NIS = 36,417,565.  
 New Mexico and Rio Arriba: 2012 Hospital Inpatient Discharge Data (HIDD).



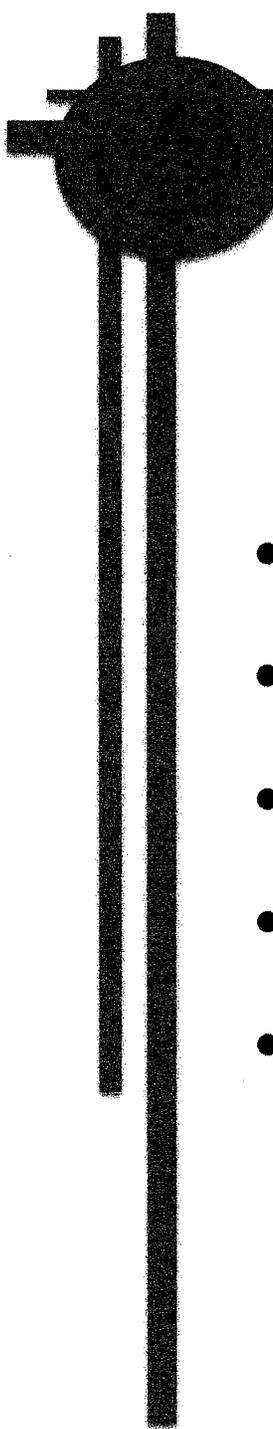
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## Milagro/UNM seeing opiate addicted women and withdrawing babies from across state

- Some move to Albuquerque with family or Milagro residence
- Some drive in every few weeks for counseling and buprenorphine prescription
- Many relapse due to lack of local resources and difficulty accessing care remote from community

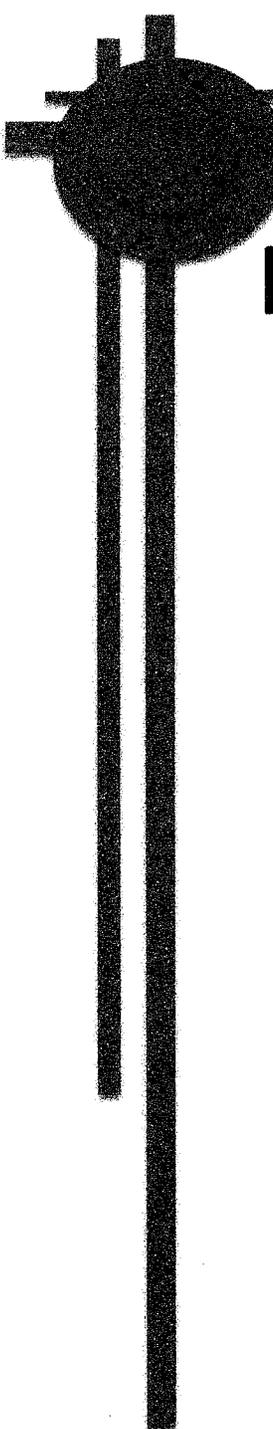


# New Mexico Counties with Methadone Clinics



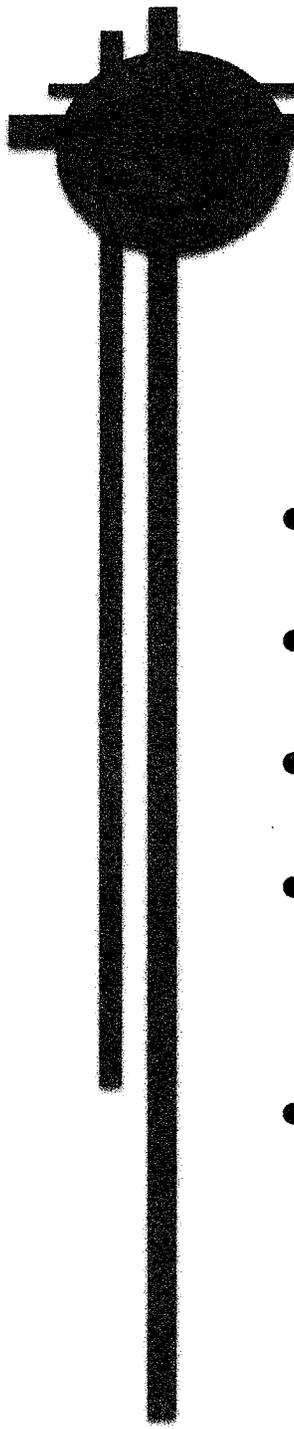
# Substance abuse counseling in pregnancy

- At Milagro clinics or ASAP
- Gender specific issues
- Sexual trauma
- Issues of family preservation
- Address use by partners and family



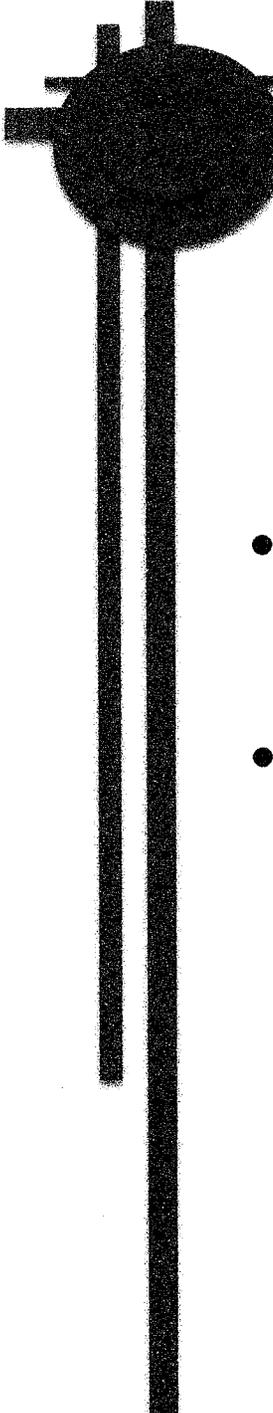
# Patient medical home for perinatal substance abuse

- Prenatal care
- Substance abuse counseling
- Well child care
- Buprenorphine treatment
- Case management
- Developmental care
- Contraception
- Primary care



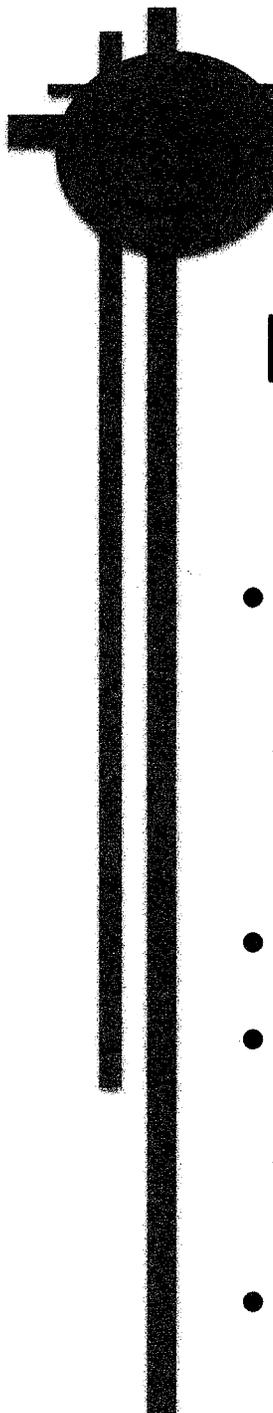
# Integrated Developmental and Behavioral Services

- Early Intervention
- Specialized “home visiting”
- Infant Mental Health
- Trauma-informed behavioral health services
- Services in one place and or delivered in the home across a continuum of possible needs



# Integrated Psycho-social and Behavioral Services

- Pregnancy and birth as a time of developmental transition
- Supporting “both brains” during this developmental transition = better outcomes for both mother and baby including:
  - More effective and efficiently delivered services
  - Prevention of future behavioral health issues in the child
  - Prevention of relapse in mother



# FOCUS/Milagro Medical Home Serves Behavioral Health and Early Childhood Goals

- Emphasis on care of 2 brains
  - Substance abuse treatment
  - Coordinate mental health services
  - Subutex, Suboxone treatment
- Healthier pregnancy, healthier infant brain
- Medical home care mother and baby
  - Continued Suboxone treatment
  - Support of healthy parenting, home based services
- Thank you