Protecting the Next Generation
Drug and Alcohol Use During Pregnancy
NADEC Webinar

Seminole Tribe of Florida: Health Department

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Objectives

- To understand the types of drug exposures most commonly seen in today’s society.
- To understand the short and long-term physical effects of drug and alcohol exposed infants.
- To understand the short and long-term financial effects of drug and alcohol exposed infants.
- To understand prevention and reduction of drug exposed infants through contraception.
- To understand the multidisciplinary approach required for children prenatally exposed to drugs and alcohol.

Brief Anatomy Lesson

- Implantation is when transfer begins
- The placenta is an organ that connects the developing fetus to the uterine wall
- Allows nutrient uptake, waste elimination, and gas exchange via the mother’s blood supply
- Exchange provides the infant’s lungs, kidneys, stomach, intestines, brain and other vital organs with their needs

The Blood Connection: Placenta

Baby will receive elements of food, drinks, inhaled substances, injected substances, or things absorbed through the skin
Protection

Exposures
- Tobacco
- Alcohol
- Marijuana
- Cocaine
- Methamphetamines
- Opioids
- Use of other prescription medications (not discussed here)
- Discretion of physician/patient
- Risk versus benefit
- Type of medication (pain, antiseizure, antidepressants, antipsychotics)

Polysubstance Abuse
- In NHSDA study, half of the mothers who used illicit drugs also used cigarettes and/or alcohol
- Infants with heavy alcohol exposure
  - 2 times as likely to be exposed to opiates
  - 3.3 times as likely to be exposed to amphetamines
- Challenge due to increased risk for preterm birth and potentiated withdrawal spectrum
Tobacco
- Prenatal
  - Low birth weight
  - Preterm delivery
  - Premature rupture of membranes
  - Placental abruption
  - Placenta previa

Infants
- Increased stress, tone, irritability, poor self regulation
- SIDS (2-4x)

Children
- Diabetes (4x)
- Decreased sperm count in males
- Cognitive development
  - Language, reading, vocabulary, reasoning, memory
- Behavior Problems
  - Increased activity, inattention, impulsivity, opposition, and aggression (possibly due to smaller frontal lobe)
- Increase delinquency and criminality

Tobacco (Post Natal Exposure)
- First Hand Smoke
- Second Hand Smoke
- Third Hand Smoke
  - Clothes
  - Hair
  - Furniture

Children exposed to cigarette smoke are at increased risk for asthma, upper respiratory infections, ear infections, doctor visits, hospital admissions....
Alcohol
- **Fetal Alcohol Syndrome**
  - One of the most common identifiable causes of mental retardation (ID)
  - No amount of alcohol is safe
  - Damage can occur at any time during pregnancy
- **Diagnosis**
  - Growth deficiency
  - Classic facial features
  - Central nervous system (CNS) structural and functional abnormalities
  - History of prenatal alcohol exposure

FAS Facial Features
- Characteristics include:
  - Small head circumference
  - Flattened midface
  - Sunken nasal bridge
  - Flattened and elongated philtrum
  - Thin upper lip
  - Small eyes

FAS Manifestations
- **Infants**
  - Irritable, jittery, regulatory problems
- **Childhood**
  - Hyperactivity
  - Developmental delay
  - Low tone
  - Learning disabilities
  - Auditory and visual impairment
  - Seizure disorders
  - Intellectual disability (mental retardation)
  - Poor attention and concentration skills
  - Deficits in memory and reasoning
  - Varying degrees of major organ system malformations
  - Miscarriage/Stillbirth
  - Infant death
Alcohol-related neurodevelopmental disorder (ARND)
- Normal growth with no abnormal facial features
- Display a pattern of behavioral, developmental, or/and cognitive problems, which cannot otherwise be explained
- Subtle alterations in brain organization or chemistry
- Defect can appear later as a: Behavior problem, Learning disability, ADHD, Aggression, Violent tendencies, Impulsivity, Reduced personality/increased shyness

FAS Screening
- FAS Facial Photograph Analysis Software
  - Measures magnitude of expression of 3 diagnostic features
    - short palpebral fissure lengths
    - smooth philtrum
    - thin upper lip
- FASD Behavioral Traits Survey (BTS) Screening Tool
  - 53-item screening tool
  - children, teens and adults
  - FASD without the facial features for a full diagnosis of FAS.
  - Intended for use by educators, front-line social and medical service providers who have had long term, close contact with the individual.

Washington State Foster Care Passport Program (Prevalence 10-15/1,000; n ~600 children)
- Screened for three conditions:
  - FAS Phenotype from a photograph
  - Evidence of brain damage with prenatal alcohol exposure from their health summary
  - Other syndromes identifiable from a facial photograph
  - 100% sensitivity, 99.8% specificity, 85.7% predictive value positive, and 100% predictive value negative. - JPediatr 2002;141:712-7
- Personal protocol
  - History
  - Physical exam with high index of suspicion
  - Referral to genetics
Marijuana
- THC (delta-9-tetrahydrocannabinol) rapidly crosses the placenta and enters breast milk
- Inattention and/or impulsivity
- Deficits in problem-solving skills
- Deficits in learning and memory
- Academic underachievement
- 648 children at 6 years old, showed significant effect on school-age intellectual development

Cocaine
- Little is known about long term effects
- "Crack baby"
- Addictive stimulant derived from Coca plant
- Also an anesthetic
- Prenatal
  - Premature birth
  - Placental abruption
  - Miscarriage
  - Fetal death
  - IUGR
  - Birth defects
    - Brain (abnormal EEG)
    - Heart
    - Gastrointestinal
    - Limbs
    - Cloverleaf skull
    - Hydrocephalus

Cocaine
- Infant
  - Tremors
  - High-pitched cry
  - Irritability
  - Excess suck
  - Hyper activity
  - Episodes of either apnea or fast heart rate
- Child
  - Low IQ
  - Poor academic and language skills
  - ADHD and poor self regulating behavior
  - May be due in part to unstable family environment associated with drug use
Methamphetamines
- Addictive stimulants
  - Used to treat narcolepsy, ADHD, and obesity (short-term therapy)
  - Also used as illicit drugs of abuse
    - methylenedioxymethamphetamine (MDMA, ecstasy)
    - methamphetamine (ice, crystal)
    - methylenedioxymethamphetamine (MDA, the love pill)
    - methylenedioxyethylmethamphetamine (MDEA, Eve)

- Exposure outcomes are uncertain
  - Prematurity
  - IUGR (possibly 2 fold increase)
  - Questionable risk congenital anomalies
  - Poor school performance and behavior problems
  - Increased emotional reactivity, anxiety and depression
  - Increased risk of ADHD
  - Motor and mental impairment in 1st year of life with “heavy” use
  - Withdrawal is unclear
    - Reported cases of shrill cry, irritable, sweaty, sneezing
  - Neuroimaging
    - Structural and metabolic brain abnormalities

Opioids
- Natural and man-made substances resembling morphine
  - Examples include: codeine, heroin, methadone, Percocet, Vicodin, Lortab, Oxycodone
- Prescription pain medication abuse on the rise
- Methadone:
  - Withdrawal of opioids during pregnancy
    - Significant fetal distress
    - Fetal death
Not Just in Florida

- "In 2006, pain clinics in Broward County handed out 85% of all the Oxycodone distributed by doctors nationally" (Rush, 2010)
- Just because it is prescribed in Florida, doesn’t mean it stays in Florida!

Neonatal Abstinence Syndrome

- Discontinuation of opioids from maternal supply can lead to withdrawal.
- Opioid withdrawal rate ranges from 42 to 94%
- Other substances can exacerbate the withdrawal
- Can begin within hours, may not present for weeks
- Diagnosis
  - Positive maternal history or screening
  - Features of neonatal withdrawal
  - Positive urine specimen (mom or baby)

Meconium Happens!

- Urine Drug Screen
  - Low sensitivity (high false negative rate)
  - Only catches recent exposure for most drugs
- Meconium Tox Screen
  - Sensitive and specific for drugs (including opioids)
  - Usually a send out, results in days to weeks
  - Collection is specific
  - Reflects exposures during the 2nd and 3rd trimesters
Neonatal Abstinence Syndrome

- Rate of NAS newborns increased from 1.2 to 3.39 per 100 hospital births per year.
- The number of mothers using or dependent on opiates increased from 1.19 to 5.63 per 1000 hospital births per year.
- From 2006-2009, 173% increase in newborns treated in Florida for drug withdrawal syndrome (NAS).

Finnegan Scoring

- “We see them here almost daily.”
  - Dr. Matthew Seibel, APH/WPH, Orlando
- “It’s so hard to watch them, you can’t console them.”
  - Mary Such, NICU nurse, Broward Gen
- “This one baby, he couldn’t even feed. He was screaming, his face was convulsing so badly…”
  - Janet Colbert, NICU nurse, Broward County Hosp

Treatment

- Medication Therapy
  - Indicated based on infant scoring
  - Morphine or methadone
  - Also with a sedative
    - Phenobarbital or valium
  - Weaned slowly based on scores
- Supportive Care
  - Decreased sensory stimulation
  - Smaller feedings (tube fed)
  - High calorie formula (increase needs)
  - Monitoring symptoms
Hospital Cost
- Infants often spend 3-4 weeks in the NICU weaning off medication
- Average hospital cost for healthy newborn: $9,500.00
- Average hospital cost for baby in withdrawal: $53,000.00+
- Readmission
  - Poor symptom control
  - Shaken Baby Syndrome

Long Term Cost
- More than 1,500 Florida babies are born each year addicted to prescription painkillers
- 15% of babies in neonatal units are addicted to opiate-based painkillers.
- Costs the state Medicaid program $32 million
- Limited documented research on long term developmental effects or cost.

Resource: Tampa Bay Times, 5/10/13

Now What?
- Prevention
- Progression
Prevention
- Expectant Mothers
- Tobacco cessation programs
- Rehabilitation (AA, NA, inpatient, outpatient)
- Heroin → Methadone
- Drug Use Prevention
- Pregnancy prevention

Pregnancy Prevention
- Why not?
  - Lifestyle associated with drug use
  - “Can’t remember to take a pill”
  - Weight gain
  - Hormone therapy
  - Fear of parents
  - Accessibility
  - Spontaneity
  - Cultural/spiritual beliefs
  - Desire for pregnancy

Pregnancy Prevention
- Abstinence
- Condom
- Pill
- Patch
- Ring
- Diaphragm
- Depo
- IUD
- Nexplanon
Most hassle free...

- Depo-provera (99.7%)
  - Injection
  - Every 3 months
- IUD (Intrauterine device) (99.7-99.9%)
  - Hormonal and non-hormonal options
  - May reduce periods
  - Extended use (5-10 years)
- Implant (99.9%)
  - Inserted into the arm
  - Last 3 years

How do I do that?

- Take initial opportunity to ask mom about family planning
- Take every future opportunity to follow-up with that plan
- Educate yourself as to local resources
  - OB/GYN office, Planned Parenthood, Primary Care
  - Provide educational materials and contact numbers
  - Provide assistance with insurance coverage/programs
- Personal recommendation:
  - Focus on immediate post-partum period (1st 6 weeks)
  - Positively encourage and support mom’s decision
  - Encourage “set it and forget it” birth control methods
  - Remind about routine STD testing

Progression
Through the Ages

- Toddlers 16-36 months
  - Temper tantrums, poor social skills, fine and gross motor
- Toddlers 3-5 years old
  - Hyperactive, short attention span, mood swings
  - Have problems transitioning activities
  - Difficulties processing auditory or visual information
  - Kicked out of preschools (biting, hitting)
  - Poor language development
- School Age and Teenagers
  - Risk of learning disabilities and behavioral problems
  - Risk of drug use, school failure, or correctional intervention

CCDT

- Due to continued identification of need for services, Children's Center for Diagnostics and Therapies was created
- Separate building affiliated with our health department
- Close association with medical and school programs
- Patients are received by internal or external referral
- Services are provided in schools, at clinic sites, or in the home.

What do we offer?

- Speech/Language Therapy
- Physical Therapy
- Occupational Therapy
- Behavior Therapy
- Psychological/Diagnostic Testing
- Psychiatric Evaluations
Speech and Language Pathology

- Speech
  - Voice
  - Stuttering
  - Articulation/Phonology
  - Swallowing/Feeding
- Language
  - Expressive (Oral expression)
  - Receptive (following directions)

How can parents help these kids?
- Reading to your children at an early age
- Repeat sounds are dropped, replaced or mispronounced
- While in the car, play games

Occupational Therapy

- What do they do?
  - Work on increasing fine motor (smaller muscles)
  - Visual skills
  - Self-help skills
    - Home
    - School
    - Socially

Physical Therapists

- What does a Physical Therapist do?
  - Improve gross motor skills
  - Wheelchair evaluations
  - Assess equipment needs
  - Increase mobility
  - Increase range of motion
Behavior Analyst/Therapist

- What does a behavior analyst do?
  - Conducts behavior assessments to identify behavioral skills and needs
  - Works across multiple environments to increase positive behavior
  - Create charts, activities and programs
  - Educate child and parents
  - Track progress

Clinical Child Psychologist

- Psycho-educational/Academic/Intelligence evaluation
  - Evaluate overall reading, writing, math, comprehension, fluency skills and the impact that emotional/behavioral/intellectual issues have on learning.
- Neuropsychological evaluation
  - Clinical field of psychology that aims to study, assess, understand and treat behaviors directly related to brain functioning.
    - Traumatic Brain Injury
    - Cerebral Palsy
    - Other medical diagnoses and syndromes

Psychiatric Evaluations

- A psychiatrist is a physician who specializes in the diagnosis, treatment, and prevention of mental health and emotional problems.
- Can order or perform a full range of medical and psychological tests that provide a complete picture of a patient’s physical and mental state.
- Provides med management, if needed.
Exception Student Education Specialist
- Assisting with children ages birth to 21
- School placements
- Implementing Individual Family Service Plan (IFSP)
- Individual Educational Plan (IEP)
- Early developmental screenings
- Communicating with partnering programs when working with a child seen through CCDF.
  - Family Services, Preschools, Clinics, Boys & Girls Clubs, Recreation and Education
  - Public and Private schools

Early Childhood Intervention
- First line resource for all caregivers involved with children from birth-5 years old
- Offers strategies and support to both teachers and family members to provide growth opportunities for children with special needs.
- Early developmental screenings
- Personal Protocol
  - Screen all exposed infants at 4 months and 9 months old, additional as needed

How do I do that?
- Needs assessment for your community
- Identify these problems at a very early age
- Assess necessary resources
- Build or collaborate with a team of professionals
- Regularly monitor the progress of each child
- Research funding opportunities
- Reach out to your state contacts for early intervention services
  - Child Find and Early Steps
Take Home

- Infant drug withdrawal can a long, painful, and expensive process
- Polysubstance and the multifactorial nature of exposure, makes long term course of treatment somewhat linear
- Ask about a meconium tox screen if you are suspicious of rapidly metabolized drugs
- Find ways to screen your kids early and keep them on your radar
- Pregnancy prevention, prevention, prevention
- Collaborate with your community

Protecting Our Children
An ounce of prevention is worth a pound of cure.

Keep calm and collaborate!

Bibliography

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- Resource: "Children with Postnatal Drug and/or Alcohol Exposure"
- Resource: "Children with Prenatal Drug and/or Alcohol Exposure"