New Mexico Early Childhood Education & Care Department | Family Support and Early Intervention Divisi
FAMILY INFANT TODDLER (FIT) PROGRAM

CENTER FOR DEVELOPMENT & DISABILITY

Early Childhood Evaluation Program – Technical Assistance & Consultation
Continuing Education series for NM FIT Providers

ECEP Office Hours

Brain Development: Typical Development and the Impact of Substance Use and Stress

Presented by

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Early Childhood Evaluation Program (ECEP) Interdisciplinary Clinical Faculty and Staff

Housekeeping

- We want to hear you
  - Please use the chat or jump in with comments, ideas, and questions.
  - Goal is to share experiences and knowledge.



Objectives

- Have a basic understanding of the complex process of brain development from conception to age 5
- Identify common symptoms of prenatal exposure and neonatal opioid withdrawal syndrome
- Understand how environment and experience play a role in child development

Brain Development



- Starts off as 3 millimeter neural tube (3 pennies stacked).
- On average, grows at a rate of 250,000 nerve cells per minute throughout pregnancy.
- Brain development in utero is largely under genetic control but can by impacted by the environment.
- By 18 months of age, no more neurons are added.
- The brain doesn’t stop developing until age 25 but 90% of brain development happens before age 5.
- Trauma and stress can have severe impacts on the developing brain including attention/focus issues, learning disabilities, low self-esteem, impaired social skills, and sleep challenges.

Intrauterine Drug Exposure (IUDE)

- Neonatal Opioid Withdrawal Syndrome (NOWS)
  - New term for Neonatal Abstinence Syndrome (NAS)
  - Refers to the clinical features & treatment of withdrawal from opioids

Neonatal Opioid Withdrawal Syndrome has increased over the past 2 decades to 6.2% per 1000 live births in 2020.

Mascarenhas, et al. 2024

Neonatal Opioid Withdrawal Syndrome

Common Symptoms:

- Diarrhea and loose stools
- Excessive weight loss/poor weight gain
- Excessive, high pitched crying
- Fever
- Frequent yawning
- Gassiness
- Hyperphagia
- Hyperreflexia
- Hypersensitivity to stimulation
- Irritability
- Jitteriness
- Mottled skin
- Sleep challenges
- Sneezing
- Stuffy nose
- Sweating
- Tachypnea
- Tremors
- Uncoordinated feeding
- Vomiting

Mascarenhas, et al. 2024

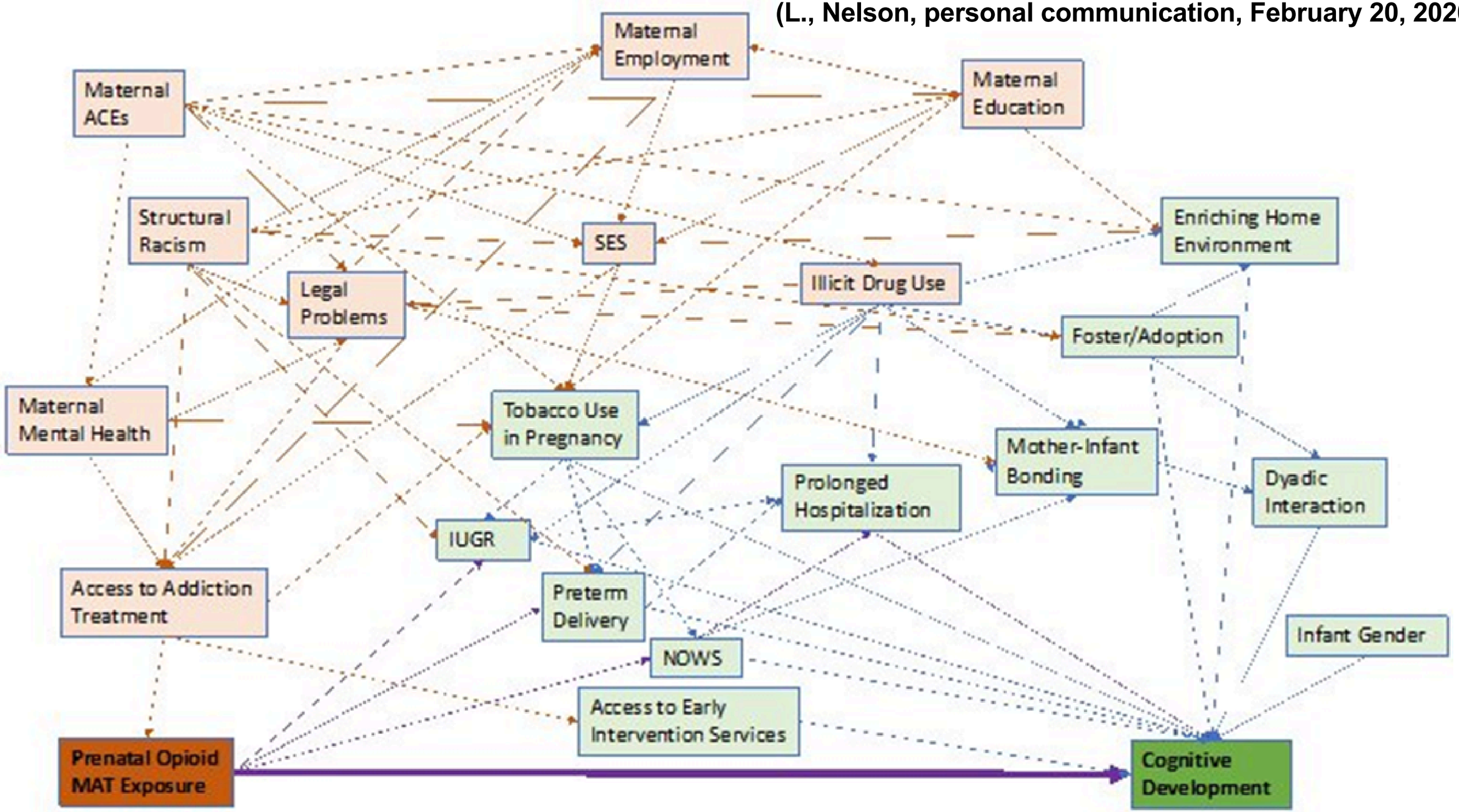
Outcomes of Substance Exposure

- Children with non-prescribed, prenatal opiate exposure were found to have poorer cognitive and motor outcomes compared with healthy controls; from as early as 6 months and persisting into school age (Yeoh et al., 2019).
- At 8 months of age, no differences between infants exposed to MAT in utero & healthy control infants on the Bayley; differences noted in sensation seeking on SP2 (Bakhireva et al., 2019).

Outcomes of Substance Exposure Continued

- Compared to controls, toddlers exposed to MAT were reported to have more behavioral difficulties, however, once maternal psychological distress (depression & anxiety) was accounted for, opiate exposure did not predict behavioral outcomes. (Sarfi et al., 2013)
- Cognitive scores did not differ between children prenatally exposed to MAT or non-exposed controls in children between 12-24 months. Across groups, the quality of a child's caregiving environment was shown to have a strong influence over infant cognitive outcomes (Whitham et al., 2012).

(L., Nelson, personal communication, February 20, 2020)



Toxic Stress in the Prenatal/Postnatal Experience

- Low levels of parental education
- Limited economic resources
- Lower levels of social support
- More health difficulties
- Unstable housing
- Poor nutrition
- High levels of violence
- High rates of abuse & neglect
- High rates of legal problems

Toxic Stress

According to Harvard University's Center on the Developing Child, toxic stress is the **“excessive or prolonged activation of stress response systems in the body and brain.”**

Perkins, Amanda DNP, RN, 2019

Toxic Stress

Brain development is initially guided by genes and then influenced by environment/experience. Toxic stress can lead to increased cortisol and brain architecture changes:

- decreased brain weight
- decreased plasticity in the brain
- increased cortisol, leading to risk of inflammation in the body and lowered immune system

Perkins, Amanda DNP, RN, 2019

Impacts of Opiate Use on Parenting

Opiate-impacted caregivers were more likely to:

- be less responsive to children's cues/needs
- be depressed
- be rated as having more family stress
- be victims of psychological & physical aggression
- use psychological aggression & be physical in managing their children's behavior

(Davie-Gray, 2011)

Some of What We See In Practice

- Frequent cancellations/no-shows
- Mistrust of medical professionals/EI providers
- Frequent crisis
- Difficulty in engaging in consistent/predictable routines
- Difficulty with physical/emotional regulation for parent and child
- Trauma/multi-generational trauma
- Separations/transitions between caregivers/settings

UNM FOCUS Approach

- Family/person-centered
  - Trauma informed
  - Relationship based
  - Non-judgmental, harm reduction approach
- Dyadic in nature
- Holistic interdisciplinary care
  - Parent empowerment
- Coaching model
  - Strengths based

Protocols/Assessments Used to Inform Treatment or Referral

- AEPS/ HELP (Ongoing Assessment)
- Alberta Infant Motor Scale (AIMS)
- Environmental Risk Assessment Tool (ERAT)
- Hammersmith Infant Neurological Examination (HINE)
- ITSEA/BITSEA (Socio-Emotional)
- M-CHAT (Autism Risk)
- Neonatal Behavioral Observation (NBO)
- Sensory Profile - 2
- Screening Tool for Autism in Toddlers and Young Children (STAT)

Interdisciplinary Teaming

- Transdisciplinary Team Consult Meetings (TTCM)
  - To integrate and plan effective early intervention strategies, review assessment information, developing ECO scores, etc.

- Collaborative Consultation
  - Such as meeting with the child's doctor or to attend an ECEP evaluation to provide information on the child or family.

Interventions

- **Circle Of Security** Increased reflection, improved cue reading, increased coping, identification of parent triggers, etc.
- **Infant Massage** Opportunity for bonding/connection, co/regulation, healthy touch, emotional/physical boundaries, reduced constipation, or reducing sensitivity to stimulation, etc.
- **Facilitating Attuned Interaction** Integrated practice in EI for creating healthy relationships between parents and providers, and supporting parents to be more reflective in their ability to respond to their child's cues.
- **Behavioral Health Services** Flexible, dyadic, infant mental health services directed at bridging families into more intentional mental/behavioral health/case management agencies at the time of transition. To include crisis/safety planning in high risk circumstances.

Safety Plan Template

Relapse Prevention/Safety Plan

Name: _____ **Date:** _____

Completed with: _____

Why is recovery important to me? What are my reasons for recovery that I want to remember? How can I remember these reasons? (For example, some people carry a picture that means a lot to them to remember, etc.)

Things that will help me maintain my recovery: (For example, talking to a friend, attending AA or NA meetings, exercising, see my therapist regularly, doing something that helps me calm, etc.)

Who, or what, are the people, places or things that contribute to increased stress in your life and increase the chances of relapse? What steps or actions can you take when you have to deal with these people, places, and things? (for example, friends who use, bars, certain areas of town, certain activities that you would do while using, situations at work that will be stressful, etc.

What are some signs that I may be close to relapse? This might include signs that things are stressful, deteriorating, or not going well. (For example, I am more depressed, irritable, thinking about alcohol and/or drugs a lot, putting myself in risky situations, etc.)

Who are the people that can support me if I am close to relapse: (For example, conversations with certain people who can understand, attending AA or NA meetings, attending church, contacting my therapist, engaging in hobbies that keep my mind off of using, etc.)

List of people you can call on in those moments:

If a relapse happens, what I will do to make sure that my children are safe:

Who are the safe people who I can bring my children to if I am close to using or who can come get my children if I have used?

Name	Phone Number
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

If a relapse happens, what steps can I will take to regain sobriety: (for example, talk to my therapist, attend AA or NA meetings, attend church, etc.)

Who are the people that need to be included in my plan to regain sobriety and how?

Where should I keep this plan?

Signature Date

Case Example A

Child Experience/Presentation:

- Prenatal: IUDE, limited pnc
- Newborn: Born at 31 weeks, VLBW, respiratory failure requiring intubation, feeding challenges resulting in g-tube
- Infancy: global developmental delays, genetic syndrome confirmed, intense oral aversion
- Toddlerhood: Continued developmental delays, all calories via Pediasure.

Caregiver/Environment:

- High stress with biological parents
  - Untreated SUD
  - Untreated mental health
  - Unstable living environment
  - Passive exposure

- Transition/Grandparent Environment:
  - Consistent/predictable schedule and expectations
  - Follow through with EI visits/strategies
  - More consistent interaction with medical specialties
  - Started daycare

Case Example A

Case Progression:

- Building rapport
- Bringing in additional disciplines
- Engaging in collaborative consultation with primary care physicians and Infant Mental Health provider
- Working with grandparents to stair-step services and supports that feel supportive and meaningful

Case Example B

Child Presentation:

- Prenatal: Exposure MAT
- Newborn: Hyperreflexia, feeding challenges, dysregulation
- Infancy: Lack of social engagement
- Toddlerhood: Social-emotional concerns, challenges at daycare

Presentation during intervention:

- Enmeshment with caregiver
- Motor delay
- Language delay
- Socio-emotional delay
- Significant atypical stress responses

Caregiver/Environment:

- High School Dropout
- Food insecurity
- Significant mental health challenges
- Caregiver relationship dysfunction
- Significant financial stressors
- High stress environment
- Intergenerational Trauma

Substance Use Resources

- **Crisis Text Line**
  - Text Home to 741741
- **Dose of Reality** - Substance Use Information
  - https://www.doseofreality.com/
- **Never Use Alone**
  - 877-696-1996 - Overdose Prevention Lifeline
- **Partnership to End Addiction** - Text Program
  - https://drugfree.org/get-help-hope-by-text/
  - Text JOIN to 55753
- **SAMHSA National Helpline**
  - 1-800-662-HELP (4357)
- **Suicide and Crisis Lifeline**
  - 988 Number

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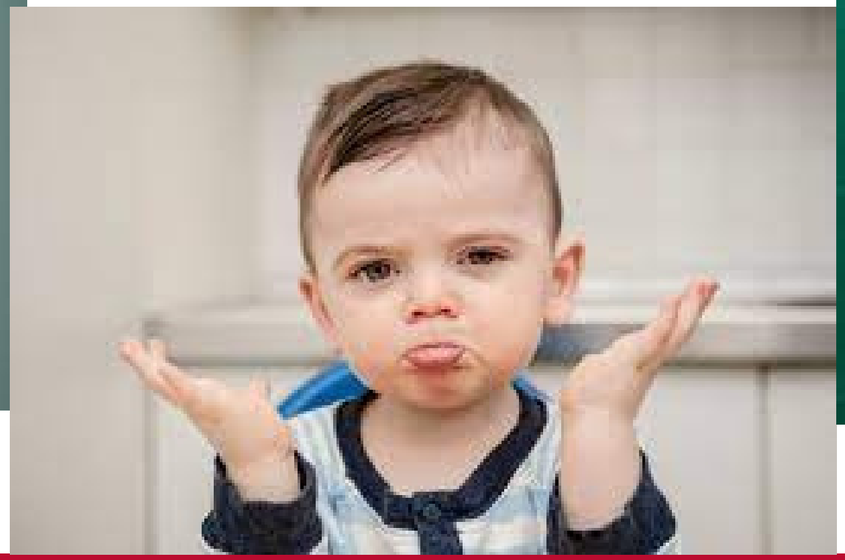
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Questions?

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