Parental Substance Abuse and Child Maltreatment

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Development of Addiction

Neural Adaptation:
- Tolerance
- Dependence
- Craving
Causes of Addiction

- Genetics
  - Novelty Seeking
  - Risk Taking
  - Reward Sensitive
  - Punishment-Insensitive

- Environment
  - Culture
  - Access/Opportunity
  - Peers
  - Stress
  - Trauma

- Development
  - Trauma
  - Adolescent Exposure
Brain Development

Critical Periods

Proliferation
Migration
Differentiation
Effects of Experience on Brain Structure & Function
Why is this important to child welfare professionals?

- Because of compelling data connecting developmental exposure to addictive drugs and maltreatment to increased risk of substance use.
Scope of the Challenge

- Parental substance abuse accounted for roughly 40% of children who had a parent rights terminated in 2016
- One-quarter of kids live in a household with parental substance abuse
- Parental alcohol and/or drug use was one of the reasons for removal for 39% of children placed in care in 2017 (5 states > 60%)
- Close to 22% of the adult population has a substance use issue
- The percentage of children removed due to parental substance abuse has increased every year for the past two decades
‘Wired’ to use mind-altering drugs

- Since prehistoric times
- Universal among humans
- Ubiquitous in the animal kingdom
- Role of dopamine “reward pathways”
Mesolimbic Dopamine Pathway
Mesolimbic Pathway

- Evolved through natural selection
- Promotes eating and reproduction
- Co-opted by all drugs of abuse
  - Drugs are often more potent than natural reinforcers
  - We control dose and delivery
- Excess use dampens sensitivity
- Novelty-Seeking
- Risk-Taking
- Impulse Control
- Sensitivity to Punishment
Functional Development vs. Age

- **Limbic: Motivation/Emotion**
- **Prefrontal Cortex: Impulse Control/Abstract Reasoning**

- **Adolescence**
Addiction, *Addictio*

“to devote, sacrifice, or abandon”

• Failure to pay rendered the debtor permanent property—to be kept, killed or sold as a common slave (Schiavone, 2012).
Homeostasis is Conditioned
Homeostasis is Conditioned
3 Causes of Relapse

- Cues associated with drug
- "Taste" of any addictive drug
- Stress
What are kids using?

- THC
- LSD
- Cocaine
- MDMA
- Opiates

THC dominates the usage among kids.
Cannabinoids

The marijuana plant produces well over 100 cannabinoids including:

- **No** medical benefits
- Significant risks (Psychosis, reduced cognitive function)

*Lancet Psychiatry, 2019*

Tetrahydrocannabinol (or THC)

Cannabidiol (or CBD)
Endocannabinoid System

Anandamide

2-Arachidonoylglycerol (2-AG)
Anandamide and 2-AG
Endocannabinoids

- Modulate virtually all brain activity
- Act like a **neurological highlighter** to mark meaning
- Play a critical role in neuroplasticity
- Help us sort important from unimportant stimuli
THC

Everything is ‘Bacon!’
Flooding the Fields
Acute Effects of Marijuana

Causes pleasure, relaxation
Stimuli are more rich and meaningful

• Impairs memory
• Slows response time
• Causes errors in critical tracking
Homeostasis of Cannabinoid Signaling

Dalton and Zavitasanou, Synapse, 64: 2010
Exposure during adolescence dampens pleasure pathway and increases risk for drug abuse

Downregulation of “pleasure pathway”
Enhanced heroin or alcohol self-administration
Fewer CB1 receptors in mesolimbic structures

(e.g., Ellgren et al., 2007, Neuropsychopharmacology Panlilio & Justinova, 2018, Neuropsychopharm; Stopponi et al., 2014, Eur Neuropsychopharm; Volkow et al., 2014, PNAS)
Heavy-smoking teens

Altered cortical structure

CB1 Downregulation

Jacobus et al., 2015; Ganzer et al., 2016; Lorenzetti, V., Solowij, N., & Yücel, M. 2016,
Heavy-smoking teens

**Increased impulsivity** (Aston et al., 2016, Drug & Alcohol Dependence; Ganzer et al., 2016, Neuropsychological Review)

**60% less likely to graduate high school** (Daily smokers by 17, compared to non-smokers, Silins et al., 2014, Lancet)

**7X more likely to attempt suicide** (Silins et al., 2014, Lancet)
Epigenetics: Homeostasis Across Generations

Offspring of adolescent “partiers” show

- Increased anxiety
- Increased depression
- Increased risk of heroin addiction and alcoholism

- Genetic, brain and behavioral changes in their offspring

In Rats: Szutorisz & Hurd, 2018, Neuroscience & Biobehavioral Reviews)
But it’s Legal!

• Brain compensates for a drug that alters its activity
• Especially when used during adolescence, marijuana decreases sensitivity to reward/pleasure
• Marijuana is a gateway drug (all are)
• Scientific evidence should guide policies and practices.
• Widespread use is likely to have lasting impacts for individuals and society
Impact on Parenting

- Self-centeredness
- Externalizing behavior
- Impaired judgment
- Substance-induced mental and cognitive issues from chronic usage of drugs and alcohol
- Progressive decline in capacity
- Withdrawal/Craving/Obsession with use
The Self Esteem Issues

• The parent who comes into adulthood with multiple distractions, trauma, distortions and a diminished sense of capacity is unlikely to function optimally
• Lack of hope, meaning, purpose and accomplishment
• Parents react to the world based on low self-esteem
• Engage in self-medicating behaviors
Dealing with Addiction

Recovery occurs as the brain re-adapts to the absence of a drug, by returning neural structures & activity toward the nascent state. Like addiction, recovery is graded—developing over time and due to neural changes (i.e., plasticity).

The longer a person has been using, and the higher the dose they have been administering, the deeper the addiction/adaptation. Multi-Generational impacts create deeper addiction, and require more time, support, and resources for recovery.
Treatment is not a final word

- Getting clean and sober clears the path
- Children and parents will often need continued support and services for long periods of time
- Access to long-term support including biomedical, social, psychological, and 12-step programs are critical
Q & A

Thank you!