



Substance Use Disorder Primer with focus on stimulants/methamphetamine

Justin Trevino, MD- OhioMHAS Medical Director

Meeting of the Full Sentencing Commission

December 13, 2018

Rhodes State Office Tower- Room 2925

- Drug use patterns develop due to:
 - Substance availability
 - Perceived dangerousness/safety of substance
- All drugs of abuse work on our endogenous neurotransmitter systems
- All drugs of abuse have effects in our biological reward centers
- Dopamine is the primary neurotransmitter signaling reward
- Drugs of abuse affect neurons at a cellular level- electrical activity of neurons, energy utilization
- Some drugs have more localized brain affect (stimulants), some more widespread (cannabis)
- Over time, all drugs of abuse affect: cognitive functions (memory, problem-solving, planning), motivation, organizational abilities, judgment. The priority becomes obtaining the drug and avoiding negative states (drug withdrawal).
- Substance Use Disorders are Brain Disorders
- Positive reinforcement initially from substance use; as use proceeds lessened positive reinforcement and predominance of negative reinforcement
- Not everyone who uses a substance becomes addicted- genetics has a very significant effect, social environment, early life trauma, mental illness, drug potency
- Substance use disorders have specific diagnostic features:
 - Craving
 - Inability to control use
 - Urge to re-administer
 - Spending large amounts of time procuring the drug, using or recovering from the effects of the drug
 - Continuing to use despite problems related to use
 - Tolerance
 - Withdrawal
- Stimulants- Cocaine and Methamphetamine (Methamphetamine is a more potent, long-acting stimulant), prescription stimulants (methylphenidate- Ritalin), synthetic cathinones (“bath salts”)
 - Increase the speed/intensity of physiologic processes (heart rate, blood pressure, alertness, motor activity)- heart attack and stroke are risks of use
 - Euphoria (“high”)- rapid onset with a negative state (“crash”) as drug effects subside

- Loss of inhibitions
- Physical aggression
- Paranoia/delusions, hallucinations
- Methamphetamine focus
 - Methamphetamine use in U.S.- prevalence data (2008-2014): about 600,000 regular users
 - Users report of route of administration: smoked (about 70%), snorted (about 30%), injected (about 10%), orally ingested (less than 5%)
 - Methamphetamine- related mortality in the U.S. doubled between 2010 and 2014. Mortality is primarily related to cardiovascular effects.
 - Treatment: Psychosocial treatment has proven effectiveness. Medication assisted treatment- may be helpful for some treatment- resistant patients in combination with continued psychosocial treatment.
 - Matrix Intensive Outpatient Treatment- well-studied treatment for stimulant dependent individuals, shown to be clinically and cost-effective. Sixteen-week treatment.
 - Components
 - ✓ Individual counseling/sessions with family present
 - ✓ Recovery skills group
 - ✓ Family education group
 - ✓ Social support group
 - ✓ Relapse prevention group
- Use of multiple substances is often seen in the those who present for treatment in the community
- Alcohol use remains quite prevalent and has significant medical and psychiatric implications, including significant associated mortality.
- Substance use treatment has basic tenets regardless of the substances being used: psychosocial treatment, cognitive and motivational approaches, medication assisted treatment (primarily for opioids, alcohol, and nicotine dependence)