Substance Use Disorder Primer with focus on stimulants/methamphetamine

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- 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 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)