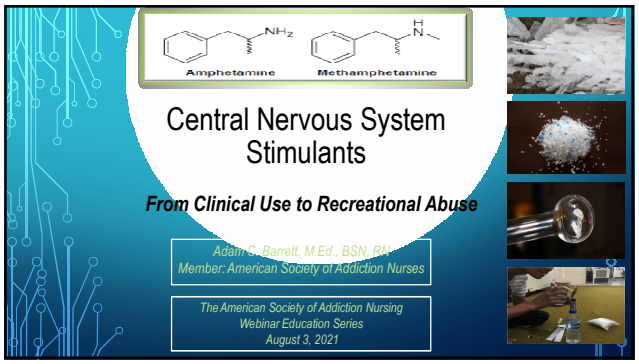
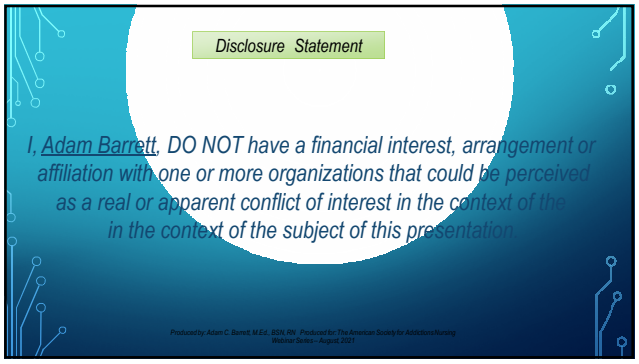

Amphetamine
Methamphetamine
Central Nervous System Stimulants
From Clinical Use to Recreational Abuse
Adam C. Barrett, M.Ed., BSN, RN
Member: American Society of Addiction Nurses
The American Society of Addiction Nursing
Webinar Education Series
August 3, 2021


Disclosure Statement
I, Adam Barrett, DO NOT have a financial interest, arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the in the context of the subject of this presentation.
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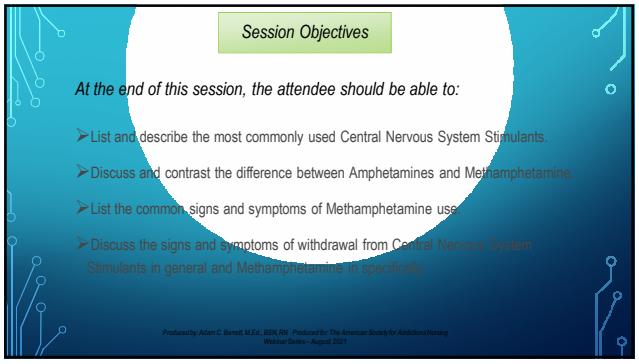
Session Objectives
At the end of this session, the attendee should be able to:
List and describe the most commonly used Central Nervous System Stimulants.
Discuss and contrast the difference between Amphetamines and Methamphetamine.
List the common signs and symptoms of Methamphetamine use.
Discuss the signs and symptoms of withdrawal from Central Nervous System Stimulants in general and Methamphetamine in specifically.
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Central Nervous System Stimulants

- CNS stimulants are a class of drug that, when ingested, stimulate the brain, speeding up both mental and physical processes
- This increase in energy, improve attention and alertness, and elevate blood pressure, heart rate and respiratory rate. They decrease the need for sleep, reduce appetite, improve confidence and concentration, and lessen inhibitions
- The ingestion of CNS stimulants increases the level of one or more neurotransmitters in the brain, such as dopamine, norepinephrine, or serotonin. They may also have other effects, depending on the actual drug. For example, [berlermineo](#) possibly indirectly increases leptin levels – leptin is a substance that tells us we feel full
- When prescribed for clinical use, CNS stimulants can be used to treat depression, attention deficit hyperactivity disorder (ADHD), and narcolepsy
- Prescription stimulants are typically taken in pill form. However, they can also be snorted, smoked or injected by people who misuse them
- Some people take prescription stimulants [illegible] to improve mental performance. Teens and college students sometimes misuse them to get better grades, and older adults misuse them [illegible] prescription stimulants for reasons other than treating ADHD or narcolepsy could lead to harmful health effects, such as addiction, heart problems, or psychosis.
- Prescription stimulants include: *Ritalin and Concerta* (methylphenidate) and *Dexedrine and Adderall* (amphetamines)

Central Nervous System Stimulants

- CNS stimulants differ in their ability to increase levels of certain neurotransmitters which determines what effect they have in the body and their side effects
- CNS stimulants are classified in two categories:
  - Schedule I: "Designer" Amphetamines
  - Schedule II: Amphetamine, Cocaine, Methylphenidate (Ritalin)
- There are also differences in the length of time they act for in the body and how quickly they start to work. Some CNS stimulants have been modified to improve their effect, for example, a methyl group was added to [amphetamine](#) to make [methamphetamine](#) which lasts longer than amphetamine, penetrates the brain better, and is less likely to detrimentally affect the heart
- Misuse of a prescription stimulant means:
  - taking medicine in a way or dose other than prescribed
  - taking someone else's medicine
  - taking medicine only for the effect it causes—to get high
- When misusing a prescription stimulant, people can swallow the medicine in its normal form. Alternatively, they can crush tablets or open the capsules, dissolve the powder in water, and inject the liquid into a vein. Some can also snort or smoke the powder.
- Prescription stimulants increase the activity of the brain chemicals dopamine and norepinephrine. Dopamine is involved in the [illegible] behaviors. Norepinephrine affects blood vessels, blood pressure and heart rate, blood sugar, and breathing.

Introduction: Central Nervous System Stimulants
Statistical Trends in the United States

- ✓ The National Treatment Episode Data Set (TEDS) reports that in 2014 approximately 53 people per 100,000 were receiving care at a specialized addiction treatment facility for issues involving methamphetamine.
- ✓ As of 2015, the National Institute on Drug Abuse (NIDA) reports around 6% of the American population (aged 12 and older) had tried Methamphetamine at least once.
- ✓ The United Nations Office on Drugs and Crime estimated the worldwide production of Amphetamine-type stimulants, including Methamphetamine, at nearly 500 metric tons a year, with 24.7 million abusers.
- ✓ The United States government reported in 2008 that approximately 13 million people over the age of 12 had used methamphetamine—and 529,000 of those are regular users.
- ✓ Drug treatment admissions due to methamphetamine and amphetamine abuse tripled in the United States from 3% in 1996 to 9% in 2006.
- ✓ Some states have much higher percentages, such as Hawaii, where 48.2% of the people seeking help for drug or alcohol abuse in 2007 were methamphetamine users.

Central Nervous System Stimulants

CNS STIMULANTS

Convulsants	Analeptic	Psychostimulants	
Strychnine	Doxapram	Amphetamines	Armodafinil
Picrotoxin		Methyl phenidate	Pemoline
Bicuculline		Atomoxetine	Cocaine
Pentylenetetrazole		Modafinil	Caffeine

COGNITION ENHANCERS (Cerebroactive drugs)

Cholinergic activators	Glutamate (NMDA) antagonist	Miscellaneous drugs	
Rivastigmine	Memantine	Piracetam	Citicoline
Donepezil		Pyritinol (Pyrithioxine)	Piribedil
Galantamine		Dihydroergotoxine (Codergocrine)	Ginkgo biloba
Tacrine			

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What is Methamphetamine?

- Methamphetamine is a *highly addictive* stimulant drug that affects the central nervous system. It is typically used in powder or pill form and can be ingested orally, snorted, smoked, bumped, or injected. Methamphetamine is known as meth, blue, ice, speed, and crystal, and tina, among other names.
- The term amphetamine has been used broadly to refer to a group of chemicals with similar, stimulating properties, and methamphetamine is included in this group. According to the National Institute on Drug Abuse (NIDA), *"Methamphetamine differs from amphetamine in that, at comparable doses, much greater amounts of the drug get into the brain, making it a more potent stimulant."*

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Ingredients Found in Methamphetamine

- **Acetone:** found in nail polish remover and paint thinner. Extremely flammable.
- **Anhydrous Ammonia**: is found in fertilizer and some cleaners. Mixing it with other chemicals creates a toxic gas.
- **Pseudoephedrine:** is a medication typically used as a nasal decongestant or to treat seasonal allergies. According to the National Library of Medicine, side effects of this drug include tremors, sweating and increased heart rate and blood pressure.
- **Hydrochloric Acid** is used to make plastic. It is so corrosive that it can remove rust from steel and is capable of eating away flesh.
- **Lithium** is found in batteries. It can the skin, is highly his found on matchboxes, in road flares and other explosives. It is highly flammable.
- **Toluene** is found in brake fluid. It is so corrosive it can dissolve rubber.
- **Sodium Hydroxide**, or **lye**, is used to dissolve fat/oil. It is corrosive and can also burn skin or cause blindness.
- **Sulfuric Acid** is found in drain cleaner or toilet cleaner. It is corrosive and can also burn the skin.

Clandestine Meth Lab

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Methamphetamine
Routes of Administration

- Smoking Meth: Creates a vapor or "cloud." A glass pipe is most commonly used; often referred to as an "oil burner."
- Snorting: By crushing crystals into a powder form, meth is snorted as is done with cocaine.
- Injecting: Often referred to as "pointing" or "slamming."
- Swallowing: Sometimes taken by swallowing by those who cannot tolerate the aftertaste related to vaping or smoking.
- Bumping: Also referred to as "bootie bumping." Meth is crushed, dissolved in a solution of choice and given rectally for rapid absorption.
- Theaker, Tweaking, or Tweaked: The term given to the identifyable behavior observed when someone is high on meth or in need of a fix due to withdrawal symptoms.

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Signs of Methamphetamine Use Disorder

Physical
- Dizziness
- Facial Tics
- Headaches
- Insomnia
- Increased: RR, BP, HR
- Loss of Appetite
- Tachycardia
- Body Tremors
- Fever
- Severe Weight Loss
- Complex Oral Disease
- STI's
- Skin Sores/Breakdowns
- Dry Mouth (lip smacking)
- Heightened Libido

Psych
- Depersonalization
- Anxiety
- Depression
- Manic Behavior
- Panic Attacks
- Mood Swings
- Irritability
- SI/HI
- Paranoia
- Hallucinations (auditory and visual)
- Profound Hopelessness/Worthlessness
- Guilt

Spiritual
- Loss of Spiritual Values
- Profound Guild
- Based on the individuals own set of spiritual beliefs

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The Impact of Chronic Methamphetamine use on Physical Appearance & Dental Health

Before After

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Symptoms of Stimulant Withdrawal

Note: List is NOT exhaustive

- Restlessness leading to agitation
- Mood Swings with or without physical outbursts
- Insomnia and poor sleep quality
- Drug Craving
- Fatigue
- Profound Depression
- Marked decrease in cognitive function
- "Crashing"
- Disinterest in Surrounding
- Fluctuations in Blood Glucose Levels
- GI deregulation (N/V/D)
- Headaches
- Visual & Auditory Hallucinations
- SI/HI
- Withdrawal/Isolation
- Fever & Sweats
- Muscle Spasms

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In Conclusion

In conclusion, consider the following points:

- ✓ Amphetamine, including Methamphetamine Use Disorder/Addiction is a serious problem for our society and it is not going away.
- ✓ Amphetamine, including Methamphetamine Use Disorder/Addiction is a brain-based, neurochemical reaction utilizing the pleasure/reward pathways in the brain via the neurotransmitter dopamine.
- ✓ People with Amphetamine, including Methamphetamine Use Disorder/Addiction cannot "JUST STOP!" However this condition can be treated.
- ✓ Understanding one's own risk factors can provide great insight into personal risk when it comes to the recreational use of alcohol and/or other substances of abuse.
- ✓ Individuals being treated for Amphetamine, including Methamphetamine Use Disorder/Addiction are at extreme risk for [illegible] self-harm
- ✓ Currently, there are no options available for medication-assisted treatment for the withdrawal or [illegible] including Methamphetamine Use Disorder/Addiction. Standard supportive treatments are utilized.
- ✓ The success rate for sustained abstinence from Amphetamine/Methamphetamine [illegible] remains low with high recidivism

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Nursing Considerations -- Discussion

#1: SAFETY, SAFETY, SAFETY, SAFETY, SAFETY, SAFETY, SAFETY, SAFETY, SAFETY, SAFETY, SAFETY, SAFETY

- *Patient at risk for:*
- *Patient at risk for:*

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Questions?

For any additional questions, comment, or suggestions, I can be reached at: maaddictionrn@gmail.com

Please put "Webinar on Stimulants" in subject line.

Thank you for your time and attention!

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