Basics of Methamphetamine, HIV, and High-Risk Behavior

Objectives

- Understand the impact of methamphetamine on the brain’s reward circuitry and implications for treatment and recovery.
- Identify drivers of high-risk behavior in terms of vulnerable populations and the role of methamphetamine and other drugs.
- Apply this understanding to prevention and treatment of co-occurring stimulant abuse and HIV/AIDS.
Sex - Drug Connection

Combines synthetic amphetamines with high-risk sex
- Party and Play (PNP)
- Chemsex
- Methsex
- Facilitated by social media

Sex-Drug Connection

Most common:
- Methamphetamine
- Cocaine or Crack
- Cocaine
- GHB
- “Ecstasy”
- Ketamine
- Amyl nitrate
Sex – Drug Connection

• Longer periods of continuous sexual intercourse
• Careless in choice of partner
• Not using condoms
• Increases sexual desire
• Increases risk, types of behavior, duration
  “it pushed my personal boundaries”

The Problem

• Methamphetamine use is up nationally
  • 2010 -> 2013: 353,000 -> 595,000 current users
• Methamphetamine use is increasing among young adults (aged 18 to 26), particularly among MSM
• Methamphetamines: six times more likely among MSM (15 % of gay/bisexual/2% heterosexual).
  • IAS 2016. CDC. Laura Kann PhD, Emily O’Malley Olsen MSPH, Tim McManus MS, and Stephanie Zaza MD
The Problem – Local Jurisdictions

▪ The proportion of methamphetamine items seized and analyzed by NFLIS laboratories in Texas increased from 19% of all drugs in 2012 to 24% in 2013.

▪ Methamphetamine is now the second most frequently identified drug reported among analyzed items in Texas, exceeded only by marijuana/cannabis.

▪ In New York City meth overdoses increased 160% from 2013 to 2014.
  ▪ NYC Health Department

The Problem – United States

▪ NY meth use doubled in 3 years, also up in both LA and SF
  ▪ 2014 CDC National HIV Behavior Surveillance

▪ “1 in 4 gay men in LA consistently use meth.”
  ▪ Cathy Reback PhD (UCLA and Friends Institute)

▪ Ten years ago meth was a phenomenon of affluent, gay, urban, white men – no longer.
  ▪ 2016 - Gay Men of African Descent (Brooklyn counseling center)
    ▪ 20% - 40% of clients use meth
    ▪ 6 of 10 African-American MSM predicted to be HIV-positive by the age of 40.
The Problem – Trans Community

- 20% of Transwomen use meth
  - Injection drug use was 34% among MTF transgender individuals and 18% among FTM transgender individuals.
  - (1999, 2000) San Francisco study by Dr. Kristin Clements at the San Francisco Department of Public Health AIDS Office.
  - Increased HIV risk through injection drug use
    - 8% new infections from IDU

The Problem - Heterosexuals

“Odds of engaging in risky sex for heterosexual methamphetamine users is between 37% and 72% greater than for nonmethamphetamine users.”

Complications of Meth Use

- Greatly increased risk of HIV, Hep C, and other infections
- Poor HIV medication adherence
- Erectile Dysfunction
- Hijacks sexual template
- Constant cravings
- Visual sensitivity and triggers

What is Methamphetamine?

![Diagram of Methamphetamine use](image)
What is Methamphetamine?

- Man-made psychoactive substance
- Complex chemistry and ingredients intended to change human brain function
- Cathinone class of synthetic drugs
- Considered a “New Psychoactive Stimulant”
- Synthetics mimic effects of natural CNS stimulants
  - (Nicotine, Caffeine, Cocaine)

Prevalence of NPS by Effect

*New psychoactive substances by effect group, up to 2015*

- Synthetics 35%
- Stimulants 2%
- Classic hallucinogens 18%
- Opioids 5%
- Synthetic cannabinoid receptor agonists 5%
- Sedatives / Hypnotics 3%
- Not yet assigned 5%

*United Nations Office on Drugs and Crime*
Related Synthetic Cathinones

Molly - Bath Salts – Flakka – Gravel – Alpha PVP
- Can look like Crack Cocaine or Powder Cocaine

Methamphetamine is the Core Molecule

Ethylone (a.k.a. Molly)

Methamphetamine

Alpha-PVP (a.k.a. Flakka)

MDPV (a.k.a. Bath Salts)

Methylone (a.k.a. Molly)
History of Meth

1887  First created in Germany
1919  Crystalline form in Japan
1919 – 1930
  ◦ Used as a component in benzedrine bronchial dilators and to stimulate CNS.
  ◦ Benzedrine available OTC
1940s
  ◦ Japanese soldiers use meth
  ◦ Nazi soldiers use meth
    ◦ Pervitin
    ◦ Hitler a meth addict
  ◦ Allied soldiers use meth
    ◦ 5 meth-containing “energy” tablets in each soldier’s kit

History of Meth
America’s love affair with speed
History of Meth
America's love affair with speed

U.S. Meth MSM Epidemics
1950s
1960s
1970s
1980s
2000s
2014 >

Energy, wakefulness, weight loss, sexual enhancement
Manufacturing moves to Mexico

- Increased production in Mexico since 2006
- Indicators are now equal to or at higher levels than before the ban on pseudoephedrine.
  - Proportion of Meth crime lab items rose from 19% in 2012 to 24% in 2013 in Texas.
- Purity & potency across US remain at 95-96%.
- Areas which had traditionally been dominated by heroin now reporting increasing problems with meth
- Liquid meth

Production and Distribution
Price and Purity of Methamphetamine in USA 2007 – 2012

Oct 2007 to Dec 2012
Price Down 72 %
Purity up 120 %

Source: USDJ: DEA – STRIDE Data

Meth Manufacture

Variety of methods
- P2P, Nazi Method, Red Phosphorous Method, etc.

Mom and Pop labs
- Sudafed Smurf

Mexican cartels
- Refined P2P process to industrial scale
Meth Production Chemical Ingredients

Anhydrous Ammonia (*Fertilizer*)
Iodine (*Veterinarian Products*)
Lithium (*Batteries*)
Methanol (*Gasoline Additive*)
Red Phosphorus (*Matches*)
Muriatic Acid (*Used in Pools*)
Ammonia
Acetone
Ether (*Engine Starter*)
Methods of Ingestion

Smoke
Swallow
Hot rail
Snort
Booty bump
Slam

Duration of Action 10-12 hours
Reward Circuitry

- Food
- Sex
- Excitement
- Comfort
- Nurturing

- Reinforcement for pleasure, then neural pathway formed: creates tolerance

Meth and Dopamine

- Meth forces dopamine from neuron
- Meth blocks receptor reuptake
- Meth is neurotoxic
- Meth destroys dopamine transporters
Limbic System

Relative Dopamine Reward

Meth and the Brain

Dopamine levels in the brain
Meth in the Body

**Acute Physical Effects**
- Increases heart rate, blood pressure, pupil size, respiration, sensory acuity, energy
- Decreases appetite, sleep, reaction time

**Chronic Physical Effects**
- Tremor, weakness, dry mouth, weight loss, cough, sinus infection, sweating, burned lips, sore nose, oily skin/complexion, headaches, diarrhea, anorexia
Meth in the Brain

Acute Psychological Effects
- Increases confidence, alertness, mood, sex drive, energy, talkativeness
- Decreases boredom, loneliness, timidity

Chronic Psychological Effects
- Confusion, concentration, hallucinations, fatigue, memory loss, insomnia, irritability, paranoia, panic reactions, depression, anger, psychosis, formication, scarring

Psychiatric Consequences

Acute Methamphetamine Psychosis
- Extreme paranoid ideation
- Well formed delusions
- Hypersensitivity to environmental stimuli
- Stereotyped behavior
- Panic, extreme fearfulness
- High potential for violence
Meth and the Brain

Findings

◦ Poor abstract thinking
◦ Increased visual acuity
◦ Prolonged cognitive impairment
◦ Prolonged problems with mood

Impairment of Empathy

Capacity to identify emotions from facial expression and infer mental state impaired
Meth and Sex

Meth in Marginalized Communities

- Increases sex drive and sexual pleasure
- Numbs uncomfortable emotions
- Mitigates guilt/shame associated with stigmatized sex
- Mitigates depression due to economic, social marginalization
- Lowers inhibitions and social anxiety; increases sense of invulnerability
- Increases “intimacy”
- Increases duration of high/sexual activity
- Increases anal sex; number of partners
- Weight loss, energy, “focus”
Meth-Sex Fusion

Dopamine causes bonding

Sexual desire becomes highly focused, meth dependent

Requires increasing stimulation, risk, taboo for same effect

Sex triggers meth; meth triggers sex – well into recovery

Sexual templates

- Develop age 4-5
- Can expand
- Difficult to remove elements
- Meth-sex fusion:
  - Alters template
  - Focuses template
  - Tolerance

The jumble of elements in our sexual templates
Meth + STIs

Studies from San Francisco and New York show that MSMs who use meth vs. non users are:

• 2-3X more likely to have HIV

• 6x more likely to have syphilis

• 2X more likely to have gonorrhea

Meth and HIV

Use of methamphetamine (among HIV positive men) was associated with high rates of anal sex, low rates of condom use, multiple sex partners, sexual marathons, and anonymous sex.”

◦ Semple, Patterson and Grant (2002)

Meth users were twice as likely as nonusers to engage in URAI and sildenafil users were 6.5 times more likely to report having had URAI.

◦ Mansergh (2004)
Meth and HAART

Unplanned nonadherence was associated with meth-related disruptions in eating and sleeping

**Planned nonadherence was identified as a conscious strategy**
- medication schedule would not be maintained while using methamphetamine
- concerns about mixing methamphetamine and medications
- “an acceptable compromise”


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Meth and HAART

- **Drug Resistance**
  - Metabolic Rates
  - Medical Adherence

- **Drug Interactions**
  - CYP2D6

  - The effect of methamphetamine [is] two or three times greater for individuals on combination therapy, especially combinations including ritonavir (Norvir).
  - Halkitis, Parsons and Stirrat (2001)
Recovery

Phases

- Withdrawal: Day 1-15
- Honeymoon: Day 16-45
- The Wall: Day 46 – 120
- Adjustment: Day 120-180
- Resolution: Day 180 +
Meth Withdrawal

Symptoms include:
- Depression
- Difficulty concentrating
- Severe Cravings
- Paranoia
- Exhaustion
- Confused

Approaches for Stimulants
- Accepting
- Non-judgmental
- Empowering
- Supportive
- Understanding
- Collaborative
- Facilitative
Approaches for Stimulants

Dispel the myth that meth recovery is nearly impossible

Dispel the myth that “everyone is doing it”

Dispel the myth that satisfying sex is impossible without meth

What other myths about meth exist in your community?

Approaches for Stimulants

Be aware of best practices treatment:

- Outpatient, short groups, daily for up to a year and beyond

Be aware of short attention spans, poor concentration

Be cautious about visual triggers

Be alert to meth user’s poor judgment

Assist with breaking drug/sex triggers and instilling new behaviors

Utilize the brain’s reward system
Approaches for Stimulants

- Family involvement important
- 12 step participation valuable
- Best result: combination of therapy and self-help support
- Consistent, non-judgmental approach
- Be hopeful when they cannot
- Facilitate healthy social connections

Tasks Following Engagement in Care

Get a physical workup
  - May have not been on HAART
  - May have meth-related complications (HTN, pulmonary hypertension, liver and kidney issues)

Get a psychiatric workup
  - Persistent paranoia, depression, hopelessness, suicidality

Check status of supports, resources, safety
Recovery

Most important factors for sustained recovery:

Social Connection
Belonging
Retention

12 step programs; SMART Recovery; alternative programs (eg Refuge Recovery)
Support and Therapy groups

Study Meds to Reduce Meth Cravings and Prevent Relapse

Bupropion (Wellbutrin): may reduce meth use in light meth users only.

Modafinil (Provigil): mixed results. One study has suggested that this drug – when combined with CBT – may help reduce meth use. Other studies have not shown a lot of promise for this drug.

Naltrexone (Vivitrol): more than one study have suggested that this drug has potential for reducing use and increasing abstinence of methamphetamine.

Mirtazapine (Remeron): one study found that mirtazapine – with CBT – was associated with significant reductions in meth use among a sample of men who have sex with men (MSM).
Reclaiming or Creating?
Many gay men have never had sex without substances
Sex and intimacy in sobriety is like a “second coming out”

Issues:
Cognitive Escapism
◦ “I am damaged goods’
Shame -> Worthiness
Trauma
Managing Feelings
Relationhip Patterns
◦ Codependency; Love Addiction; Romance Addiction

1. Take a break from sex

• Focus on getting abstinent from drugs without the complication of sex
• Sexual desire may be dormant for a while anyway – not a bad thing
• Trust that time heals
• Give your brain a chance to readjust to a lower “volume” of stimulus
• Allow your brain to rewire those pleasure-enabling dopamine receptors that meth destroyed
2. Avoid keeping “meth-mode” alive by changing habits

- Avoid other drugs (including alcohol)
- Get rid of all sexual apps and online hook-up accounts
- Change your phone number and other contact information
- Avoid impulsive sexual behaviors
- No hook-ups – make a date

3. Don’t try to recreate “meth-sex” without the meth

- Grieve meth-sex and let it go
- It’s unsustainable, unhealthy, and ultimately not satisfying
- Avoid types of porn that your associate with meth-sex
- (ideally no porn – it can keep addictive thinking alive)
- Remember nearly all meth addicts meet clinical criteria for “sex addiction”
- Stop rougher, kinkier, wilder, more taboo sex that you associate with meth
3. Don’t try to recreate “meth-sex” without the meth

- Break the grip of obsessive sexual thoughts and fantasies
  - They deplete your ability to experience arousal

- Focus on feelings not thought

- Connect with nature, make a call, play with your dog, breathe, practice gratitude, work out

4. Redefine your sexual pleasure

- Focus on physical sensations for arousal (rather than fantasy)
- Slow down sexual encounters – let the energy build
- Explore what turns you on that doesn’t lead to meth (it’s there)
  
  *(what was arousing before you used drugs)*
4. Redefine your sexual pleasure

• Sex is more than orgasm – get creative while avoiding triggers
• Think of sex without meth as “acoustic” or “unplugged” sex
• It’s quieter, scarier, but it can be more subtle, more erotic, intense, and ultimately more satisfying
• Masters and Johnson “Sensate Focus”

5. Increase your capacity for intimacy

• Develop a relationship with yourself
• Learn to manage anxiety or other feelings that bubble up during sex

  Many gay men have never had sex without a substance – “second“ coming out”

  Requires a support system and maybe a therapist

• Explore sex and emotions with one person over time
• Develop depth and sexual subtlety
Patience
Let it go
Gratitude
Self-love
Healthy connection

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