Meth or Madness?

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Meth or Madness

“Speed seems as natural as mom and apple pie – maybe even more so, since today mom is on a diet and the only apple pie in town is made by machines.”

-Jim Parker
Meth or Madness

- Prevalence
- Effect of MA use on patient
- Methodology

Key Points:
- Clinical Effects of MA
- Biological Detection and Clinical Implications
- MA Psychosis vs. Primary Psychosis
According to surveys and estimates by WHO and UNDCP, methamphetamine is the most widely used illicit drug in the world except for cannabis.

Worldwide it is estimated there are over 35 million regular users of methamphetamine, as compared to approximately 15 million heroin users and 10 million cocaine users.
Groups with High Rates of Meth Use

- Women
- Residents in Western/Midwestern Rural Areas and Small/Medium Cities
- Predominantly Caucasian, Increasing Numbers of Hispanics
- Men Who Have Sex With Men
However...

- Meth is among least commonly used drugs
  - 0.2% Americans *regular* Meth users
  - 4x as many *regular* Cocaine users and 30x as many *regular* Cannabis

- Rates of Meth use have remained stable since 1999
  - Regular users between 0.2-0.3% between 1999 and 2004

- Rates of Meth use by HS Students have declined since 1999
  - 45% decline in lifetime prevalence from 8.2% to 4.5%
However…

- Meth use is rare overall but high in selected areas
  - 5% of adult male arrestees positive for meth vs. 30% for cocaine and 44% for cannabis
- Media reports of Meth “epidemic” have hindered rational response
  - Media accounts anecdotal, unsupported by facts
  - i.e. “Fear it will turn into next Crack Cocaine”
  - Potential for “boomerang effect”
Methamphetamine Use in Past Year among Persons Aged 12 or Older, by State: 2002-04

Percent of Persons

- 0.04 – 0.32
- 0.33 – 0.97
- 0.98 – 2.21
Smaller labs can be set up with basic lab equipment and household appliances.

A variety of chemicals such as red phosphorous, seen here on the left, can be used to produce the methamphetamine, seen here on the right.
We Make House Calls

To report a suspected meth house call the Washington County Sheriff’s Office at 503.846.METH

Posters and billboards with specific contact information can encourage residents to report suspected clandestine labs.
Total of All Meth Clandestine Laboratory Incidents
Including Labs, Dumpsites, Chem/Glass/Equipment

Calendar Year 1999

Source: National Clandestine Laboratory Database
Total: 7,438 / 43 States Reporting
Dates: 01/01/99 to 12/31/99

AKA: I wish it all could be California Crank
Now the midwest farmer’s labs are great. I really love that crank they make.
The makers of Sudafed change the formula so that it can no longer be used to make methamines.

I tell ya, Delbert—this latest batch of meth did nothing for my sinus congestion!

Hmm...well, Bobby Lee, maybe it's time you went to a real doctor instead of a meth dealer.
Methamphetamine

- **Street Names**
  - meth, speed, crystal, glass, crank, tweak, yaba

- **Pharmacology**
  - Promotes release of Biogenic Amines
  - Dopamine, Norepinephrine release and reuptake inhibition
  - Serotonin release (at higher doses)

- **Route of Administration**
  - Typical Progression: Oral → Nasal → Smoke/IV
  - Binge vs. Constant Use
(Meth)Amphetamines

- Pharmacology

Amphetamine (C₉H₁₃N)

Methamphetamine (C₁₀H₁₅N)
Detection

½ Life – 10-12 hours

Detection Period –

- Urine
  - Amphetamine – 1-3 days (500 ng/ml cutoff for GC-MS)
  - Methamphetamine – 3-6 days (250-500 ng/ml cutoff for GC-MS)

- Blood
  - Methamphetamine - 1-3 days
  - >100ng/ml consistent with Abuse
  - Blood Therapeutic Levels - <50ng/ml

- Psychosis and Violence 150-1000ng/ml range \(^1,2\)

- Freq. false positives

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Methamphetamine Effects

- CLINICAL ASSESSMENT
  - Spectrum of Symptoms
  - Variability
    - Tolerance
    - Dosage
    - Premorbid Personality
    - Family History
  - Clinical History is Best Guide
  - Urine Toxicology not well correlated with psychosis

The “Meth Run”

How Much Does it Cost?

- Experts estimate that one ounce of meth equals about 110 meth "hits."

- **Cost - Sept. 2005**
  
  Per Patient information
  
  - 1/4 gram - $25
  
  - 1/2 gram - $50
  
  - 1 gram - $100
  
  - 8-Ball - $300 (3 1/2 grams)
Methamphetamine Effects

- Acute Usual Effects
- Acute Adverse Effects
- Mood Disturbance
- Withdrawal Syndrome
- Acute Toxic Confusion
- Acute Psychosis
- Chronic Psychosis
- Other Long Term Effects
Acute Usual Effects

- Flash of Euphoria, elevated mood
- Insomnia, alertness, increased energy
- Lack of appetite, thirst, diaphoresis
- Loquaciousness, “crystal clear thinking”
- Hyperacute Memory – relevant and extraneous stimuli
- Hypersexuality

Acute Adverse Effects

- Anxiety
- Progressive Stereotyped Behavior
- Fear, Suspiciousness
- Awareness of Being Watched
- Peripheral Field Visual Hallucinations

Mood Disturbances

- Depression
  - 68% Female, 50% Male

- Suicide Attempt
  - 28% Female, 13% Male

- Pathology Greater in IDU, More frequent users\(^1\)

- Anhedonia\(^2,3\)

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The cycle of abuse

10 Years of Meth Use
Withdrawal Syndrome

- Anergia, Anhedonia, Waves of intense craving
- “Tweaking” ~ 24 hours
  - Dysphoria, Scattered, disorganized thought
  - Paranoia/Anxiety/Irritability
  - Hypervigilence
  - Auditory, tactile hallucinations, Delusions
  - Normal Pupils
- “Crashing” ~ 24-72 hours
  - Intense Fatigue, Catnapping, Uncontrollable sleepiness
  - Continuing stimulation

Acute Toxic Confusion

- Uncommon
- Clouding of consciousness subtle\(^1\)
- In one ED study 13/127 unresponsive\(^2\)
  - 9/13 significant co-ingestion
  - 4/13 MA without seizures
  - 8/127 Confused, disoriented
- Most Experimental reproductions do not note Acute Toxic Confusion \(^3\)-\(^5\)

Meth Mouth
Acute Psychosis

- “Model Psychosis”
- Single Dose vs. Repeated High Dose
- English Model – Direct Psychotogenesis
  - Young and Scoville - 1938
  - Connell - 1958
- Japanese Model – Psychosis from Brain Damage
  - Sato, Yui, Wada
Acute Psychosis

- Risk Factors:
  - Premorbid Personality Disorder$^{1,2,4}$
  - MA and other substance Abuse/Dependence$^{1,2,3,4}$
  - Mode of Administration$^5$
  - Social Withdrawal$^1$
  - Previous Psychosis$^{1,2,3,4,5}$
  - Brain Injury$^3$

Acute Psychosis

- Experimentally Produced with Single Large Dose\textsuperscript{1,3,4}
- More common with escalating MA intake\textsuperscript{2}
- Ellinwood:
  - Visual Hallucinations predominate
  - Little Thought Disorder
  - Delusions sometimes persistent, reality based

\begin{enumerate}
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Acute Psychosis

- Bell - 12/14 Patients \(^{1,2}\)
  - Dosed to raise BP 50%
  - Euphoriant Effects of drug replaced by anxiety accompanying ideas of reference and paranoid delusions.
  - Psychosis Onset 5-90 hours
  - AVH occur in setting of clear consciousness
  - Restlessness, agitation and excitement
  - No Thought Disorder

Acute Psychosis

- Angrist – 20 Patients
  - Inpatient Admissions, No added amphetamine
  - Hallucinations come on suddenly, first symptoms to clear (2-3 days)
  - Subjects reluctant to disclose hallucinations
  - ½ cleared, ½ Residual affective blunting, thought disorder, chronic delusions
  - Residual patients – higher alcohol, developmental problems, more hospitalizations

Acute Psychosis

Harris and Batki – Observational Study

- 19 patients - PANSS
- Psych Emergency Services
- Last use avg. 41 hours prior to interview
- Homogenous group, small sample, various stages of intoxication/withdrawal
- 26% negative scale scores, 95% bizarre delusions, 63% Schneiderian hallucinations

The Jenny Crank Diet
Chronic Psychosis

- Not Recognized by DSM-IV-TR
- Japanese Experience
  - Large “clean populations” 1950’s, 70’s, 90’s
  - Brain Damage/Sensitization – DA release in Striatum, Nucleus Accumbens
  - Acute recurrence of previous psychosis in response to psychosocial stress, low dose MA
  - “Settled Psychosis”
Chronic Psychosis

- Yeh – 21 pts. 6 mo follow-up\(^1\)
  - 17 interviewed, 8 relapsed
  - Improvement in SADS and SANS over six months

Chronic Psychosis

- Yui – 116 female prisoners with hx of MAP
  - 36 had flashbacks
  - AH, Comments or threats, IOR, ½ VH
  - Paranoid-Hallucinatory symptoms
  - 75% Stressful events, 69.4% threatening psychotic symptoms vs 13.8%/18.8%
  - Few Negative Symptoms Noted
  - Significantly elevated plasma NE and lesser 3-MT elevation with Flashbacks

WASHINGTON, DC—Following the tragic falling death of 32-year-old methamphetamine addict Phillip Diggs, who was reportedly attacked by spiders while scaling a large construction crane near Palo Alto, CA, thousands of outraged and confused meth addicts marched frenetically on Washington as part of a week of activities urging the federal government to address the nation's growing spider menace.

"Something needs to be done and it needs to be done soon—these spiders are everywhere," said Rich Harlowe, event organizer and founder of Tweakers' Rights.

Harlowe pleads with senators to ask the King of America to do something about "all the goddamned spiders."

Now Now Now Now Now Now Now Now!, in testimony before a Senate committee Tuesday. "The government must address this problem before the situation gets out of hand and these poisonous, acid-shooting spiders develop the powers of mind control or—God forbid—flight."

"America cannot afford to ignore this any crisis any longer," Harlowe added.
Other Long-Term Effects

- Anhedonia
- Co-morbid substance abuse
- Cognitive and Motor Skills Impairment
- Aggression, Sexuality
- Risk Taking

Treatment

- Most studies show treatment as effective as other forms of drug treatment

- Matrix Model
  - CBT / Family Education / Social Support / Individual Counseling
  - Higher retention rates and completion of treatment
A multisite evaluation of a research-based intervention can be conducted in community sites during a 3 year period.

Six research-naïve sites and 2 experienced sites successfully were trained and conducted all necessary research activities for a complex clinical trial.

A complex psychosocial treatment protocol was successfully replicated at 8 sites over a 3 year period.

Over 1000 MA-Users received free treatment.
MTP (MATRIX) Study

Conclusions

- Treatment for MA dependence associated with improvements in many domains including drug use, mj use, mood, income

- Matrix treatment results in longer retention, more sessions attended, more treatment completers, more MA-negative UAs, longer periods of MA abstinence

* Except for drug court site
Summary

- MA-induced states best evaluated by clinical interview
- Toxicology helpful but not definitive
- MA-induced states follow progression
- Controlled studies of MA limited
- Individual hx and specific situation must be taken into account
- Pure MA states rare