

## Methamphetamine: Latest Knowledge, Latest Treatments

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## Stimulants



## Types of Stimulant Drugs

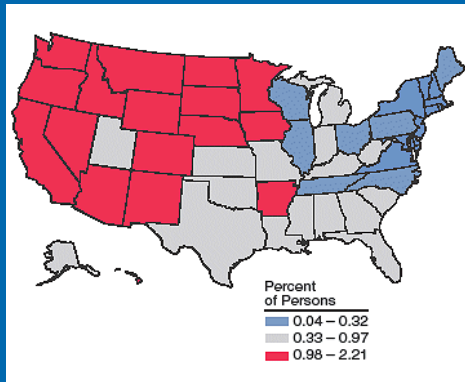
### Amphetamine Type Stimulants (ATS)

- Amphetamine "Speed"
- Dexamphetamine "Ice"
- Methylphenidate "Crank"
- Methamphetamine "Yaba"

### Scope of the ATS Problem Worldwide

- According to surveys and estimates by WHO and UNODC, ATS is the most widely used category of illicit drugs in the world except for cannabis.
- World wide it is estimated there are over 26 million regular users of amphetamine, methamphetamine, or ecstasy, as compared to approximately 16 million heroin users and 14 million cocaine users.
- Methamphetamine accounts for over 90% of the ATS used worldwide

### Methamphetamine Use in Past Year among Persons Aged 12 or Older, by State: 2002, 2003, and 2004



### Long-term effects of stimulants

- Strokes, seizures, and headaches
- Irritability, restlessness
- Depression, anxiety, irritability, anger
- Memory loss, confusion, attention problems
- Insomnia
- Paranoia, auditory hallucinations, panic reactions
- Suicidal ideation
- Sinus infection
- Loss of sense of smell, nosebleeds, chronic runny nose, hoarseness
- Dry mouth, burned lips
- Worn teeth (due to grinding during intoxication)
- Problems swallowing
- Chest pain, cough, respiratory failure
- Disturbances in heart rhythm and heart attack
- Gastrointestinal complications (abdominal pain and nausea)
- Loss of libido
- Malnourishment, weight loss, anorexia
- Weakness, fatigue
- Tremors
- Sweating
- Oily skin, complexion



## METH Use Leads to Severe Tooth Decay



**"METH Mouth"**

Source: *The New York Times*, June 11, 2004

## Methamphetamine Psychiatric Consequences

- Paranoid reactions
- Long term memory loss
- Depressive reactions
- Hallucinations
- Psychotic reactions
- Panic disorders
- Rapid addiction

## MA Psychosis Inpatients from 4 Countries

| Psychotic symptom                  | No. of patients having symptoms (%) |           |
|------------------------------------|-------------------------------------|-----------|
|                                    | Lifetime                            | Current   |
| Persecutory delusion               | 130 (77.4)                          | 35 (20.8) |
| Auditory hallucinations            | 122 (72.6)                          | 75 (44.6) |
| Strange or unusual beliefs         | 98 (58.3)                           | 39 (23.2) |
| Thought reading                    | 89 (53.0)                           | 27 (16.1) |
| Visual hallucinations              | 64 (38.1)                           | 38 (22.6) |
| Delusion of reference              | 64 (38.1)                           | 20 (11.9) |
| Thought insertion or made act      | 56 (33.3)                           | 18 (10.7) |
| Negative psychotic symptoms        |                                     | 36 (21.4) |
| Disorganized speech                |                                     | 19 (11.3) |
| Disorganized or catatonic behavior |                                     | 14 (8.3)  |

Srisurapanont et al., 2003

## MA Psychosis

- 69 physically healthy, incarcerated Japanese females with hx MA use
  - 22 (31.8%) no psychosis
  - 47 (68.2%) psychosis
    - 19 resolved (mean=276.2±222.8 days)
    - 8 persistent (mean=17.6±10.5 months)
    - 20 flashbackers (mean=215.4±208.2 days to initial resolution)
      - 11 single flashback
      - 9 Recurrent flashbacks
- Polymorphism in DAT Gene associated with MA psychosis in Japanese

Yui et al., 2001

Ujike et al., 2003

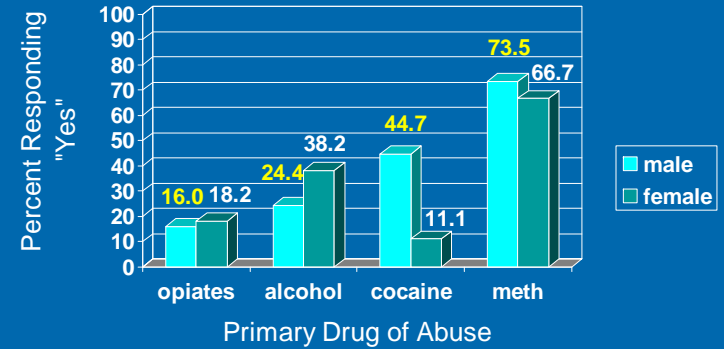
## Adolescent Meth. Abuse Treatment Admissions

| ➤ Matrix | (Boys) | (Girls) |
|----------|--------|---------|
| • 2002   | 16%    | 63%     |
| • 2003   | 25%    | 67%     |
| • 2004   | 22%    | 69%     |

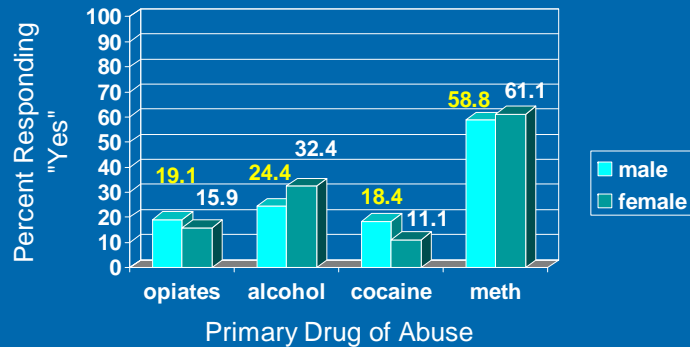
| ➤ Phoenix | (Boys) | (Girls) |
|-----------|--------|---------|
| • 2002    | 25%    | 43%     |
| • 2003    | 23%    | 51%     |
| • 2004    | 27%    | 53%     |

## My Sexual Pleasure is Enhanced by the use of:



(Rawson et al., 2002)

## My Sexual Performance is Improved by the use of:

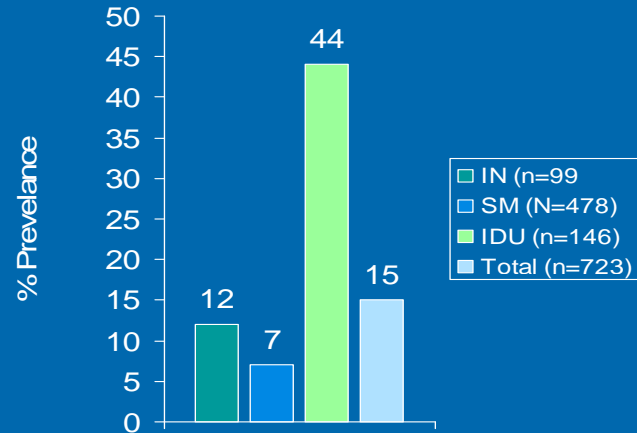


(Rawson et al., 2002)

## BSI Psychiatric Symptoms by Route



## Hepatitis C by Route



## Can Methamphetamine Users be Successfully Treated?

Successful treatment of methamphetamine (MA) users employs many elements in common with treatment strategies for other groups of drug users.

There is no evidence that MA users have poorer outcomes than other groups of drug users.

However, with attention to some specific clinical issues and application of some specific clinical strategies, treatment outcomes can be substantially improved.

## Special treatment consideration should be made for the following groups of individuals:

- Female MA users (higher rates of depression; very high rates of previous and present sexual and physical abuse; responsibilities for children).
- Injection MA users (very high rates of psychiatric symptoms; severe withdrawal syndromes; high rates of hepatitis).
- MA users who take MA daily or in very high doses.
- Homeless, chronically mentally ill and/or individuals with high levels of psychiatric symptoms at admission.
- Individuals under the age of 21.
- Gay men (at very high risk for HIV and hepatitis).

## Why the “MA treatment doesn’t work” perceptions?

- Many of the geographic regions impacted by MA do not have extensive treatment systems for severe drug dependence.
- Medical and psychiatric aspects of MA dependence exceeds program capabilities.
- High rate of use by women, their treatment needs and the needs of their children can be daunting.
- Although some traditional elements may be appropriate, many staff report feeling unprepared to address many of the clinical challenges presented by these patients

## Meth Treatment Statistics

During the 2005-2006 fiscal year:

- 42,206 individuals were admitted to treatment in California under the Substance Abuse and Crime Prevention Act funding.
- Of this group, 53% reported MA as their primary drug problem

## Statistics

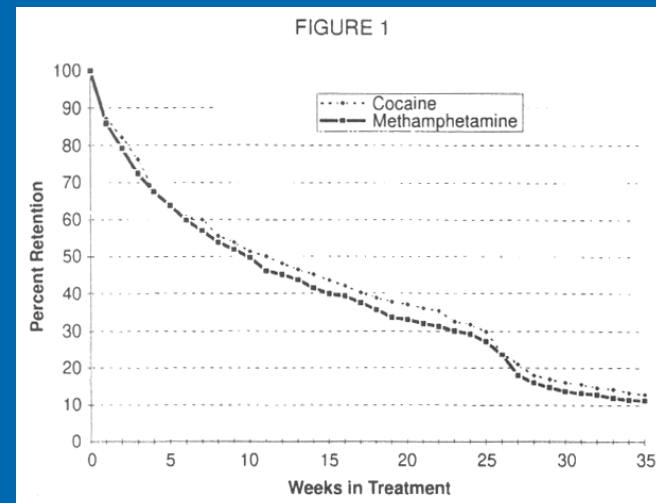
Analysis of:

- Drop out rates
- Retention in treatment rates
- Re-incarceration rates
- Other measures of outcome

All these measures indicate that MA users respond in an equivalent manner as individuals admitted for other drug abuse problems.

## Comparability of Treatment Outcome: Cocaine vs Methamphetamine

- Huber, Ling and Rawson (Jnl of Addictive Diseases, 1997).
- Cohorts of methamphetamine dependent patients (N=500) and cocaine dependent patients (N=224) treated with a standardized, outpatient treatment protocol (Matrix Model) at the same clinic site, by the same staff over the same time period, demonstrated very similar treatment response on virtually all treatment participation and outcome measures



## Psychostimulant Withdrawal

| Crash<br>(Days 1–3)   | Peak symptoms<br>(Days 2–10)   | Residual symptoms<br>(from 1–16 weeks)   |
|---|--|--|
| <ul style="list-style-type: none"> <li>• exhaustion</li> <li>• depression</li> <li>• oversleeping</li> <li>• no cravings</li> </ul> | <ul style="list-style-type: none"> <li>• dysphoria</li> <li>• lack energy</li> <li>• increased appetite</li> <li>• generalised aches and pains</li> <li>• re-emergence of mild psychotic features, including:               <ul style="list-style-type: none"> <li>• misperceptions</li> <li>• paranoid ideation</li> <li>• hallucinations</li> <li>• anxiety.</li> </ul> </li> <li>• sleeplessness</li> <li>• high craving</li> </ul> | <ul style="list-style-type: none"> <li>• episodic craving</li> <li>• insomnia</li> </ul> <p>Fluctuating:</p> <ul style="list-style-type: none"> <li>• irritability</li> <li>• agitation</li> <li>• restlessness</li> <li>• dysphoria</li> <li>• lethargy</li> <li>• amotivation</li> </ul> |

## Withdrawal Treatment

### Immediate withdrawal treatment

- setting, (outpatient, or inpatient)
- supportive environment, information and reassurance
- provide ongoing monitoring
- plan long term management strategies

### Planning for prolonged withdrawal

- anticipate it will be prolonged (i.e. affecting sleep, mood, cravings)
- plan for lapse and relapse

## Pharmacotherapies for Psychostimulant Withdrawal

- Aim to decrease discomfort
- Benzodiazepines
  - assist sleep or reduce anxiety and agitation
  - avoid long term prescribing
- Antipsychotics and Antidepressants
  - available research shows limited efficacy.

## Promising Pharmacotherapies?

- Newton, T. et al (Biological Psychiatry, Dec, 2005)  
**Bupropion** reduces craving and reinforcing effects of methamphetamine in a laboratory self-administration study.
- Elkashef, A. et al (Neuropsychopharmacology, 2007)  
**Bupropion** reduces meth use in an outpatient trial, with particularly strong effect with less severe users.
- Tiihonen, J. et al (recently completed; reported at the ACNP methamphetamine satellite meeting in Kona, Hawaii)  
**Methylphenidate SR** (sustained release) has shown promise in a recent Finnish study with very heavy amphetamine injectors.

## Treatment Options

### CSAT Tip #33

- A useful resource that presents a review of the existing knowledge about treatment effectiveness with stimulant users.
- The following issues should be addressed by the clinical staff:
  - Meth and sexual behavior
  - Meth and weight gain
  - Meth and ongoing paranoia

### Methamphetamine Treatment: A Practitioner's Reference 2007

- [www.uclaisap.org](http://www.uclaisap.org)
- This free guide, produced by the California Department of Alcohol and Drug Programs and UCLA ISAP, is a comprehensive compilation of the latest information on methamphetamine, including:
  - An overview of methamphetamine and its effects
  - Guidelines for assessment, treatment, and recovery
  - The impact of methamphetamine on special populations





### United Nations Office of Drugs and Crime Treatment Training Materials

- [www.uclaisap.org](http://www.uclaisap.org)
- UCLA ISAP has developed a comprehensive set of addiction training materials for the United Nations Office on Drugs and Crime. Based on PowerPoint presentations, these materials ([all of which are available online](#)) have been designed to improve the substance abuse treatment practices of health care professionals around the world.
  - Training on Basic Counseling Skills; Cognitive Behavioral Therapy; Motivational Interviewing; Medication treatments; other topics

## The NIATx Website

[www.niatx.net](http://www.niatx.net)

## The Four Aims

-  Reduce Waiting Times
-  Reduce No-Shows
-  Increase Admissions
-  Increase Continuation Rates

## Matrix manuals:

[www.ncadi.samhsa.gov](http://www.ncadi.samhsa.gov).

- The Matrix IOP Model is a comprehensive package that provides substance abuse treatment professionals with a yearlong intensive outpatient model for clients and their families: 16 weeks of structured programming and 36 weeks of continuing care. Clients receive information, assistance in structuring a substance-free lifestyle, and support to achieve and maintain abstinence from drugs and alcohol. The program specifically focuses on clients who are dependent on methamphetamine and cocaine and their families.

The Matrix IOP package includes:

- • [Counselor's Treatment Manual](#);
- • [Counselor's Family Education Manual](#);
- • [CD-Rom that accompanies the Counselor's Family Education Manual](#);
- • [Client's Handbook](#); and
- • [Client's Treatment Companion](#).

## Treatments for Stimulant-Use Disorders with Empirical Support

- **Motivational Interviewing**
- **Cognitive-Behavioral Therapy (CBT)**
- **Community Reinforcement Approach**
- **Contingency Management**
- **Matrix Model**

## Motivational Interviewing

### ➤ Key Concepts

- Empathy and therapeutic alliance
- Give feedback and reframe
- Create dissonance
- Focus of discrepancy of expected and actual
- Reinforce change
- Roll with resistance

## Cognitive Behavioral Therapy

### ➤ Key Concepts

- Encouraging and reinforcing behavior change
- Recognizing and avoiding high risk settings
- Behavioral planning (scheduling)
- Coping skills
- Conditioned “triggers”
- Understanding and dealing with craving
- Abstinence violation effect
- Understanding basic psychopharmacology principles
- Self-efficacy

## Contingency Management

- A technique employing the systematic delivery of positive reinforcement for desired behaviors. In the treatment of methamphetamine dependence, vouchers or prizes can be “earned” for submission of methamphetamine-free urine samples.

## Matrix Model of Outpatient Treatment

### *Organizing Principles of Matrix Treatment*

- Program components based upon scientific literature on promotion of behavior change.
- Program elements and schedule selected based on empirical support in literature and application.
- Program focus is on current behavior change in the present and not underlying “causes” or presumed “psychopathology”.
- Matrix “treatment” is a process of “coaching”, educating, supporting and reinforcing positive behavior change.

## Matrix Model of Outpatient Treatment

### Organizing Principles of Matrix Treatment

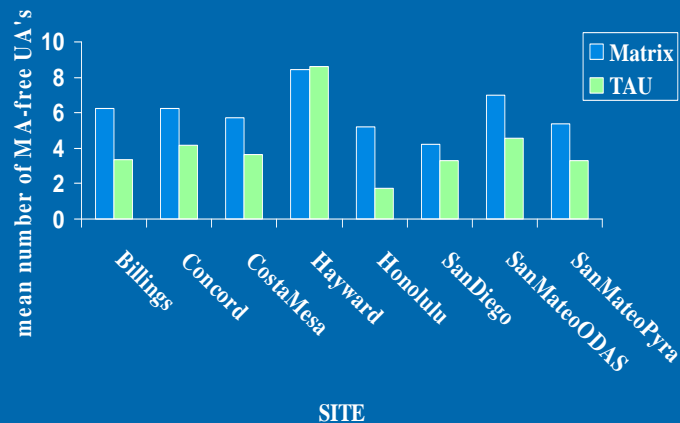
- Non-judgemental, non-confrontational relationship between therapist and patient creates positive bond which promotes program participation.
- Therapist as a “coach”
- Positive reinforcement used extensively to promote treatment engagement and retention.
- Verbal praise, group support and encouragement other incentives and reinforcers.

## The Matrix Model

| Monday                             | Wednesday                      | Friday                             |
|------------------------------------|--------------------------------|------------------------------------|
| Early Recovery Skills<br>Weeks 1-4 | Family/education<br>Weeks 1-12 | Early Recovery Skills<br>Weeks 1-4 |
| Relapse Prevention<br>Weeks 1-16   | Social Support<br>Weeks 13-16  | Relapse Prevention<br>Weeks 1-16   |

❖ Urine or breath alcohol tests once per week, weeks 1-16

## Mean Number of UA's that were MA-free during treatment



## Urinalysis Results

➤ Results of Ua Tests at Discharge, 6 months and 12 Months post admission \*\*

|        | Matrix Group | TAU Group   |
|--------|--------------|-------------|
| D/C:   | 66% MA-free  | 65% MA-free |
| 6 Ms:  | 69% MA-free  | 67% MA-free |
| 12 Ms: | 59% MA-free  | 55% MA-free |

\*\*Over 80% follow up rate in both groups at all points

## Clinical Strategies to Enhance Treatment Outcomes with Methamphetamine Users

- Educate clients about the reality of MA addiction including:
  - biology impacted by MA;
  - conditioning factors that create craving;
  - common relapse scenarios (eg. drug using friends, alcohol, extended periods of unstructured time);
  - how MA impacts families;
  - potential benefits of mental health care;
  - relationship between participation in aftercare/community care and relapse/recidivism.

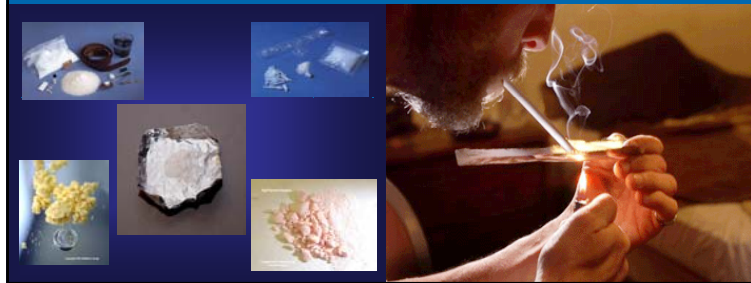
## Meth Inside Out DVD series

- A 5 DVD series on methamphetamine and a set of key treatment issues
  - Meth and the brain
  - Treatments for methamphetamine dependence
  - Impact on Relationships and the Family
  - Special Clinical issues (women, adolescents, gay and bisexual men).
  - Overview
    - [www.methinsideout.com](http://www.methinsideout.com)

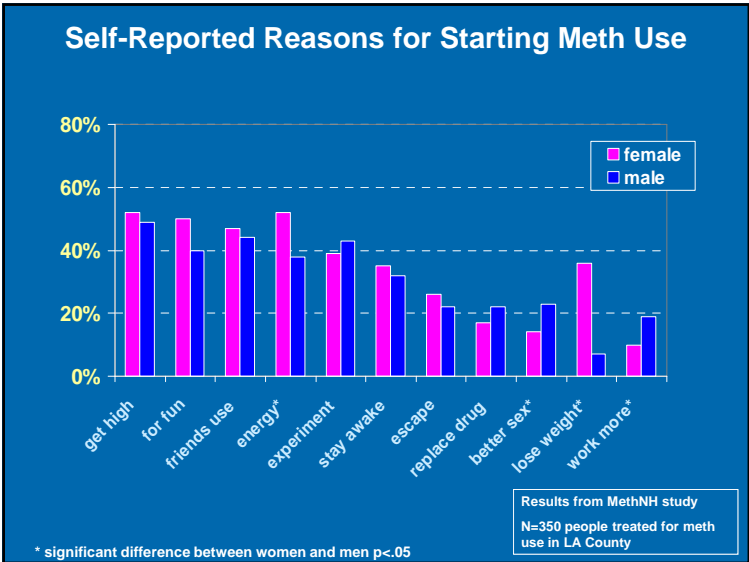
## Clinical Strategies to Enhance Treatment Outcomes with Methamphetamine Users

- The single most important factor for positive treatment outcome will be the degree to which clients are retained in post-residential treatment.
  - **Use community care organizations with a continuum of care that can decrease and increase intensity of care when clinically indicated.**
  - **Create treatment plans that maximize compliance**
  - **Employ positive reinforcement (vouchers-contingency management) methods to promote retention and prosocial alternative behaviors.**
  - **Coordinate parole monitoring and treatment participation in community care.**
  - **Make mental health care available.**
  - **Involve family in community care services.**

## Methamphetamine Abuse Treatment as HIV Prevention



# Meth and Women

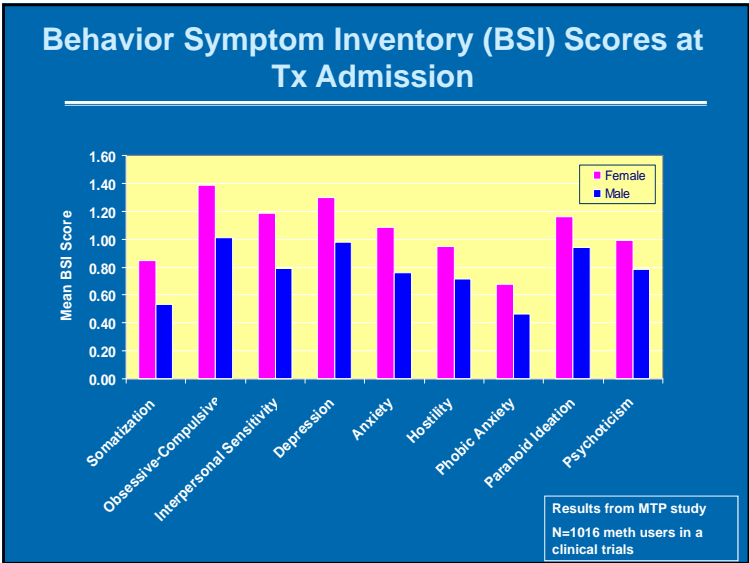


### Women Use Meth as a Coping Mechanism

Compared with men, women:

- Are more frequently **initiated** to meth use **by their partners**
- Have patterns of meth use that revolve around **relationships**
- Cite **weight loss**, increased **energy**, and enhanced **sexual response** as reasons for use

Brecht et al., 2004; Messina et al., (in press).



## Women Use Meth to Self-Medicate

Compared with men, women:

- Are more likely to suffer from **depression or PTSD**
- Are more likely to have a **panic or eating disorder**
- Are more likely to have been **prescribed medication** for psychological disorders
- Are **less likely to inject** meth

Brecht et al., 2004; Messina et al., (in press).

## Women Use Meth to Cope with *Past & Current* Abuse

Compared with men, women:

- Have **more severe histories** of sexual/physical/emotional abuse in childhood
- Abuse often **continues** into adolescence and adulthood
- More often report instances of **incest and/or molestation** while growing up and prior to abusing MA

Brecht et al., 2004; Messina et al., (in press).

## Meth-Dependent Women and *Domestic Violence*

Data from sample of meth-dependent women from CA, HI, MT.

When asked about *current or previous* partners:

- 61% had been threatened to be "hurt or killed".
- 64% had been prevented from entering or leaving the house, seeing friends, or using the phone.
- 20% had been prevented from getting/keeping a job or continuing education.
- 15% had been prevented from seeking medical or drug treatment.

Results from MTP study

## Victimization and Severity of Meth Use

Data from sample of meth-dependent women from CA, HI, MT.

- 89% of those in severe violent relationships had been sexually, physically, or emotionally abused as children.
- 85% of all severe meth users were abused as children.
- ❖ Sexual partners are a primary predictor for relapse among meth-dependent women.

Results from MTP study

## Women Are Primary Caregivers

Compared with men, women:

- Have **children** under 18;
- Are the **primary caregivers** to children;
- **Children need protection** from domestic violence.

## Parenting Issues With Meth Use

- Neglect, long periods of sleep
- Inconsistent, paranoid behavior
- Irritability, short fuse, physical abuse
- Exposure to violence, unsavory characters
- Potential for sexual abuse
- Poor supervision
- Chaotic home environment
- Mental health issues
- Unhealthy living conditions



Slide: N. Messina

## Challenge: to Break the Intergenerational Cycle



## Effects of Prenatal Meth Exposure

- Smaller babies (similar to nicotine exposure)
- With implications for poorer neurodevelopment and future health problems
- Decreased arousal and regulation
- Increased stress

Results from "IDEAL" Study (Brown Univ. + hospitals in CA, HI, OK, IA)  
– n=1618 mother/infant pairs, incl. 84 meth-exposed infants

Slide: Lynne Smith (article in Pediatrics, 2007)

## Some Types of Services for Meth-Using Women

- Special priority/programs for pregnant substance abusers
- Case management for pregnant/parenting substance-abusing women
- Drug-endangered children initiative (DEC)
- Dependency Drug Court
- Specialized treatment approaches, including trauma-informed, women-only, women/children residential

## Treatment and Care: Some Women's Issues

- Relationship issues
  - Domestic Violence
  - Fear of losing partner
  - Fear of losing children
  - Fear of sex without drugs
- Shame and stigma
- Weight gain and hygiene
- Histories of sexual and physical abuse



Covington (1997; 1998; 2002).

## Brief Summary

- Women meth users may have multiple vulnerabilities: mental health/health (including trauma/victimization/ domestic violence), economic, relationships, sex risks, multiple roles and family responsibilities
- And they may need a range of services
- Some tx approaches work for meth users (e.g. CBT, MI, CM)—at least some of the time for some people
- Some specialized approaches facilitate tx for women
- Still needed
  - Develop/modify/combine approaches to meet needs of meth-using women
  - Evaluate new approaches to provide evidence of outcomes in the community setting

## Resources: Selected Treatment Curricula for Women

- Helping Women Recover (S. Covington)
- Beyond Trauma (S. Covington)
- Voices: Empowerment for Girls (S. Covington)
- Seeking Safety (L. Najavits)
- Trauma Recovery Empowerment Model (TREM)
- TRIAD (Clark & Fearday)
- ATRIUM (Miller & Guidry)
- ❖ *Curriculum for meth-dependent women is being developed*

## SUMMARY

- Methamphetamine is a major public health problem in many parts of the US.
- Methamphetamine produces significant damage to the body and the brain
- Many (most?) changes to the brain recover with abstinence from methamphetamine
- Although there are currently no pharmacotherapies with demonstrated efficacy, there are a number of effective psychosocial-behavioral treatments

## Treatment Resources

- Methamphetamine Practitioner's Guide
  - [www.uclaisap.org](http://www.uclaisap.org)
- Meth Inside Out: A Video Series
  - [www.methinsideout.com](http://www.methinsideout.com)
- Matrix Treatment Manuals
  - [www.ncadi.samhsa.gov](http://www.ncadi.samhsa.gov) (search Matrix)

## THANK YOU

[WWW.UCLAISAP.ORG](http://WWW.UCLAISAP.ORG)

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