

Clandestine Meth Lab Awareness

Workplace Safety Training Program

National Institute of Environmental Health
Sciences (NIEHS)

Funding

- **Public Safety Responder**
 - Funding for courses provided by:
 - National Institute of Environmental Health Sciences (NIEHS)
 - Alabama Emergency Management Agency (HMEP)
 - Alabama Department of Public Health
- **Private Company Training**



Courses

- Confined Space Rescue, 40 hr
- HazMat Awareness & Operations, 24 hr
- HazMat Technician, 45 hr
- Face Piece Fit Testing, 8 hr
- Air Monitoring, 8 hr
- ICS 300 & 400
- Clan Lab Awareness, 8 hr
- WMD All-Haz Awareness, 8 hr
- Rad/Nuc Awareness, 8 hr
- Hazmat Refreshers, 8 hr
- Services such as fit testing and guest speakers
- Many more...



Everything you need to know

- Books and materials
- Documentation
- Certification
- Hours & breaks
- Phone calls
 - Cell phones
- Bathrooms
- Emergencies

The Problem

History

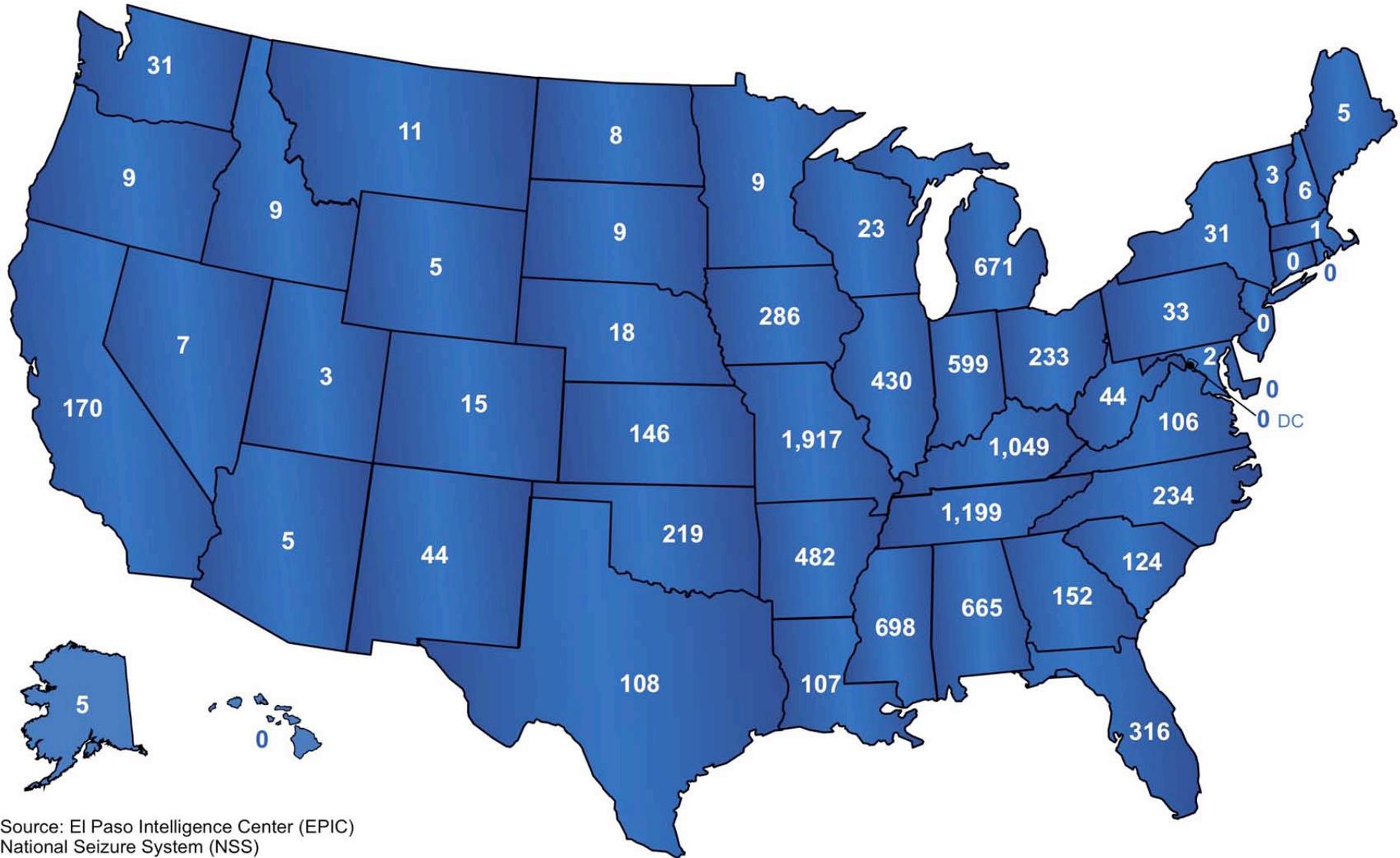
- Developed in late 1800's by Japanese.
- Used by militaries in multiple countries from 1919 - 1990.
- Used by college students beginning in 1950's.
- Beginning in 1960's sell by biker gangs such as Hell Angels and Outlaws



Ephedrine Plant

Calendar Year 2010
Total: 10,247

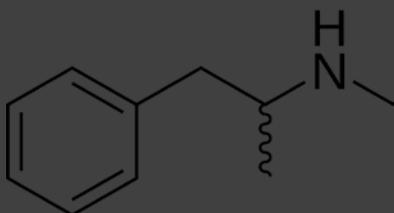
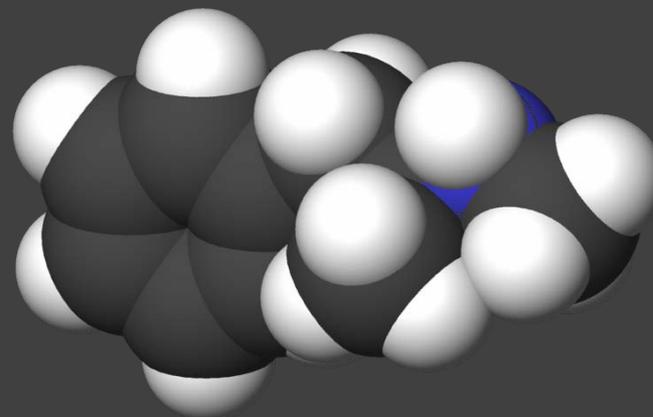
Total of All Meth Clandestine Laboratory Incidents
Including Labs, Dumpsites, Chem/Glass/Equipment



Source: El Paso Intelligence Center (EPIC)
National Seizure System (NSS)

What is Methamphetamine?

An amine derivative of amphetamine, $C_{10}H_{15}N$, used in the form of its crystalline hydrochloride as a central nervous system stimulant, both medically and illicitly.



Methamphetamine is a powerful, highly addictive stimulant



Desoxyn (Methamphetamine HCl)

Clinical Uses

- Used to treat attention deficit hyperactivity disorder
- Also used for general obesity disorders

Prescription Doses

- Adults – 12 years and older
5 mg orally 3 times a day.
(Max dose of 25 mg daily)
- Pediatrics – 6 to 12 years
old 5 mg orally once or
twice daily. (Max dose of 25
mg daily)
- Obesity – 12 years and
older 5 mg 3 times daily
(max dose of 15 mg daily)

Street Names

- Meth
- Speed
- Crank
- Go-Fast
- Zip
- Crispy
- Smokeable Forms
 - LA
 - Ice
 - Crystal
 - 64 Glass
 - Quartz

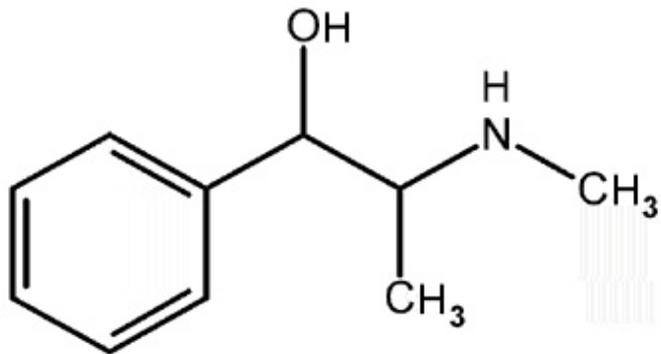
Methods of Use

- Injected – “Rush” of only a few minutes, prolonged high
- Smoked – “Rush” of three to five minutes, prolonged high
- Snorted – “Rush” of 15- 20 minutes, prolonged high
- Orally Ingested – High of 1/2 day

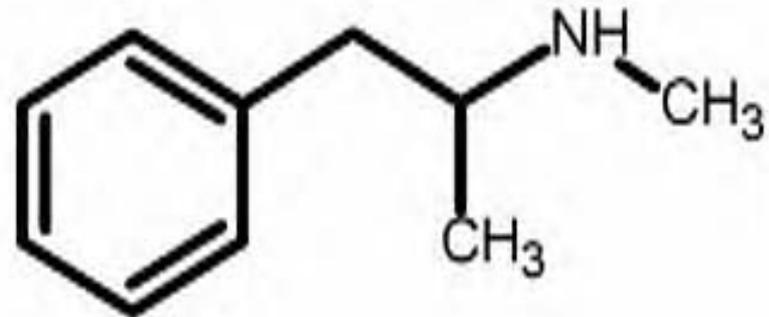
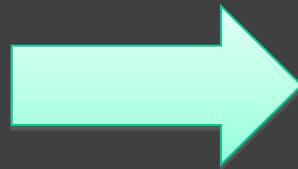
Methamphetamine Labs: Ephedrine Reduction Method

1960s: Second epidemic of Methamphetamine abuse

Early 1980s: Ephedrine/Pseudo-ephedrine Reduction becomes the method of choice for manufacturing Methamphetamine.



Ephedrine (C₁₀H₁₅NO)



Methamphetamine (C₁₀H₁₅N)

Methamphetamine Labs: “Old” P2P Method



P2P METHOD

**Required 72 hrs for
Cooking**

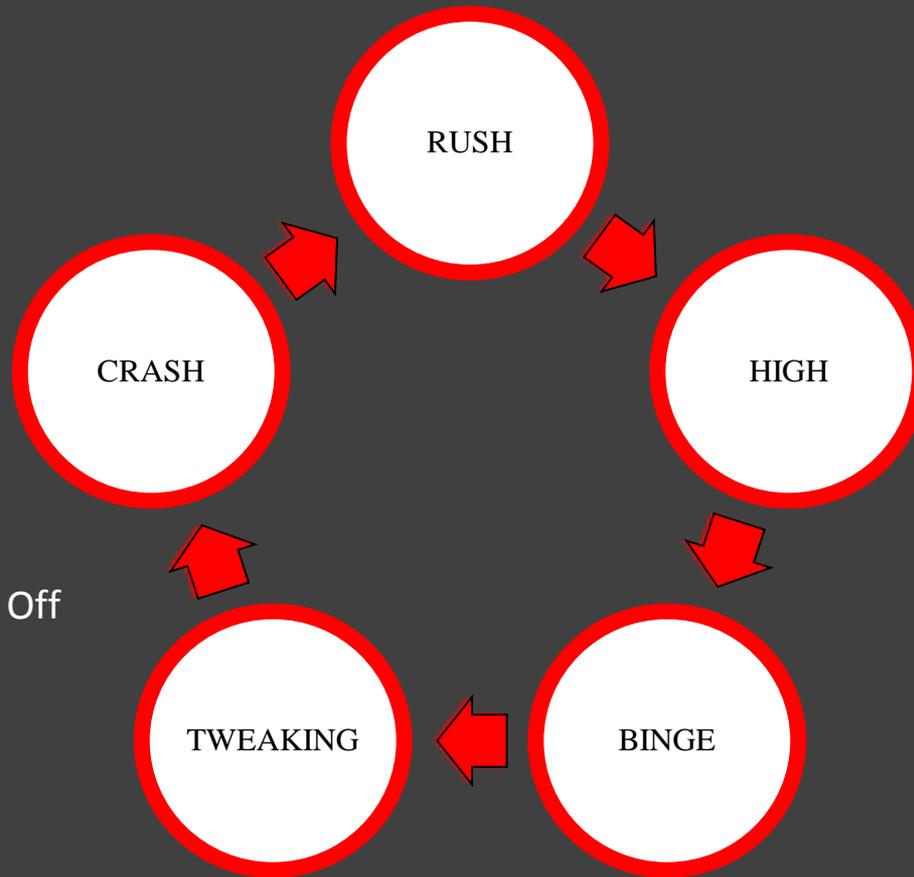
Caused Strong Odors

**Required Knowledge of
Chemistry**

**Required Elaborate Lab
Operations**

**Required Remote
Locations**

Methamphetamine Cycle of Abuse



Neurotransmitters Turn Off

Health Hazards

Acute Effects

- Nervousness
- Hyper-excitability
- Hyperactivity
- Irritability
- Compulsive/repetitive behavior
- Euphoria
- Insomnia
- Tremor
- Headache
- Drowsiness
- Fatigue
- Exacerbation of motor and phonic tics
- Tourette's Syndrome

Health Hazards

Acute Effects Cont.

- Increased sexual arousal
- Impotence
- Increased sweating
- Blurred vision
- Loss of appetite
- Weight loss
- Lightheadedness
- Urticaria
- Ulcers of lips and tongue
- Chest pain
- Unpleasant tastes

Acute Intoxication

- Unconsciousness
- Dryness of mouth
- Metallic taste
- Teeth grinding
- SOB/resp. failure
- Dilated pupils
- Cyanosis
- Lung congestion
- Convulsions/seizures
- Coma

Health Hazards

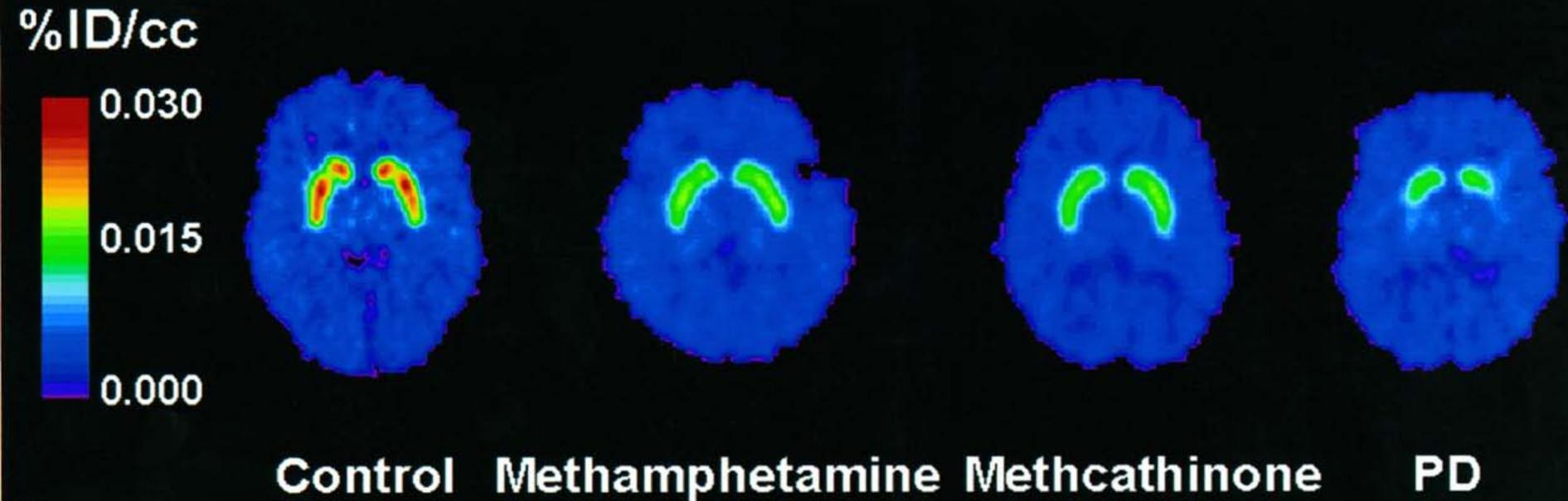
High Doses (>25Mg/day) or Long Term Exposure

- Irritability
- Paranoia
- Withdrawal
- Severe depression
- Psychological dependence
- Tolerance
- Cerebral infarction and hemorrhage

Meth Poisoning Ultimately Results in

- Collapse
- Shock
- Systemic acidosis
- Coma
- Convulsions
- Death

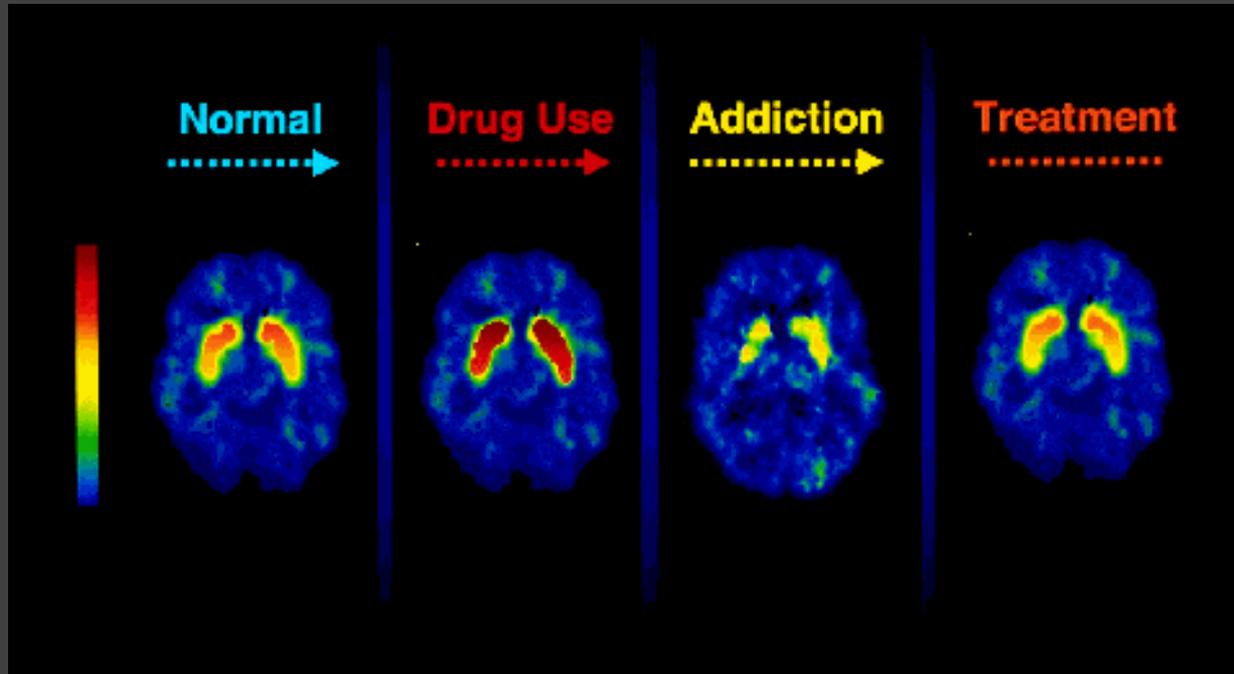
Brain Changes with Meth Use



- PET scans comparing dopamine metabolism in control subject, abstinent meth subject (~3 yrs), and Parkinson's Disease

McCann 1998

Brain Changes with Meth Use



- PET scans show loss of dopamine transporters with meth use/addiction, and improvement after long-term sobriety

-Volkow 2001

Brain Changes with Meth

However.....

- Axons don't always grow back correctly
- Different parts of brain recover at different rates
- Impairment of word and picture recall persist
- Impaired ability to manipulate information
 - Ignore information
 - Inability to filter irrelevant information
 - Studies show impairment worse at 12 weeks of non-use than is evident in current user
 - Word recall gets worse, picture recall gets better

Volkow 2001

Use/Abuse



- 2009 – 1.2 mill Americans had abused at least once within year of survey

– Source:
<http://www.nida.nih.gov/DrugPages/Methamphetamine.html>

- Current Trends in Youth

– 1999

- 8th (3.2%), 10th (4.6%), 12th (4.7%)

– 2010*

- 8th (1.2%), 10th (1.6%), 12th (1.0%)

– Source: *Monitoring the Future: National results on Adolescent Drug Use*; The University of Michigan, Institute for Social Research

Addiction



- Heroin – 14% addicted within 6 months
- Marijuana – 8% addicted within 6 months
- Methamphetamine
 - 94% for smoking
 - 72% for snorting

Source: *Meth Prevention Cookbook*, Washington State Narcotics Officer Assoc. & National Guard Counterdrug Office

Applicable Alabama Department of Public Health EMS Protocols

6th Ed

- 2.02 Crime Scene Operations
- 2.03 Hazardous Materials
- 2.07 Staging for High Risk Response
- 3.04 Altered Mental Status
- 3.26 Poisons and Overdoses
- 4.11 Patient Restraint Procedure

Altered Mental Status

AL State Protocol 3.04

- Airway protection for unresponsive patients
- Provide oxygen to maintain a SpO₂ of 95% or higher
- Determine blood sugar level
- Start large bore IV, NS at a KVO rate
- If respiratory depression present, consider Naloxone
 - 2mg IV/IN every 3 minutes up to max dose of 8mg [may titrate to effect with 0.5mg/dose]
- If suicidal, do not leave alone, look for weapons/drugs
- Transport with continuous monitoring
- Consider restraints (4.11)
- Combative, consider Haloperidol with Diphenhydramine
 - Haldol – 5mg IM every 15 min as needed, up to 20mg (Cat B)
 - Diphenhydramine – 25mg IM (Cat B)



External Poisoning

AL State Protocol 3.26 - Poisons and Overdose

- Ensure scene safety
- Follow local HazMat protocol
- Remove Pt from contaminated area
- Remove clothing
- Flush contaminated skin and eyes with copious water
- Provide airway management to ensure patency
- Oxygen to maintain a 95% SpO₂ or better
- Cardiac monitor
- Establish IV Access

Internal Poisoning

AL State Protocol 3.26 Poisons and Overdoses

- Airway protection for unresponsive patients
- If known methamphetamine overdose – ensure airway patency
- Provide oxygen to maintain a SpO₂ of 95% or higher
- Determine blood sugar level
- Attach cardiac monitor in anticipation of the cardiac dysrhythmias.
- Start large bore IV, NS at a KVO rate
- If unknown meth/amphetamine overdose, consider Naloxone
 - 2mg IV/IN every 3 minutes up to max dose of 8mg [may titrate to effect with 0.5mg/dose]

Not a Great Injectable Drug



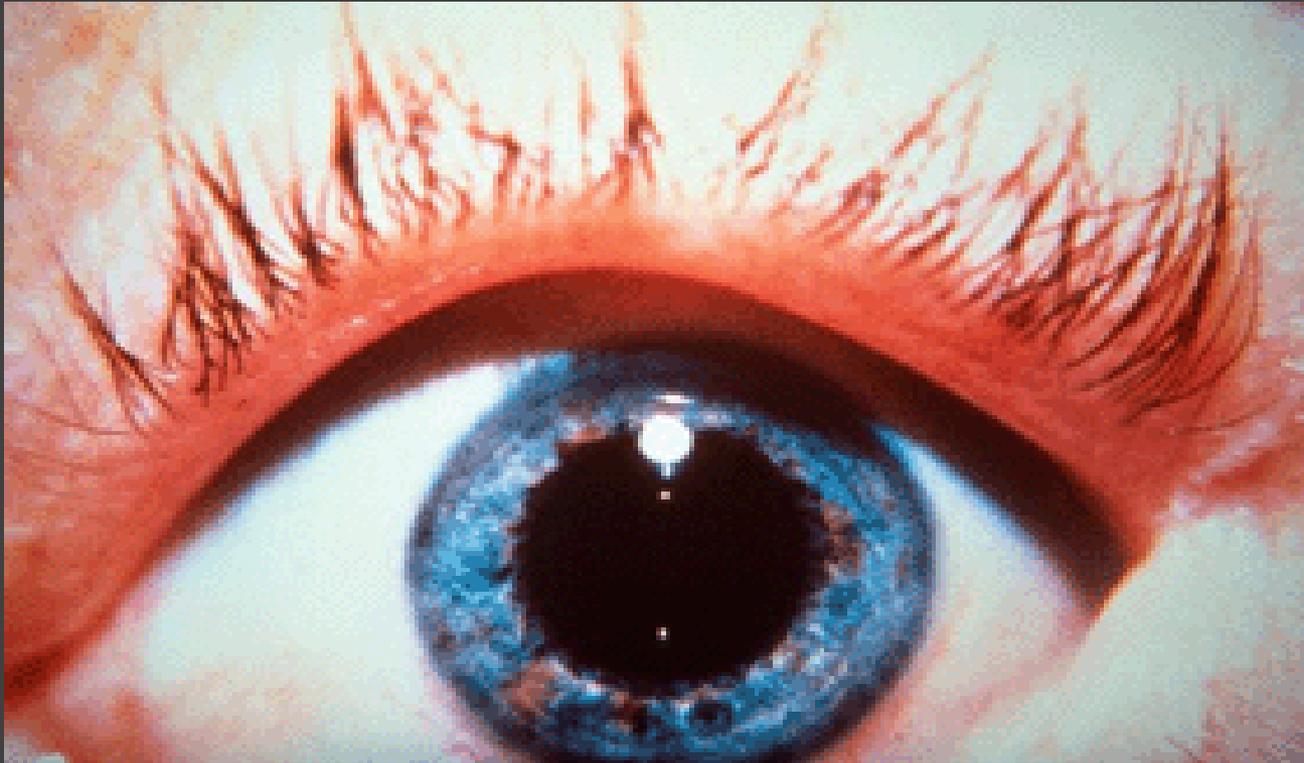
Meth Needle Marks



Dental Problems Caused by Meth



Effects on the Eyes



Before and After



1998



2002

Angela Fatino



Angela Fatino battled an addiction to meth for 2 1/2 years.

She died on October 8, 1997.

The death was determined to be suicide with a handgun.

Toxicology results confirmed meth in her system at the time.

She was 15 years old.

Confronting a User . . .

- Speak slow
- Don't yell
- Don't shine lights in their eyes
- Don't corner
- Don't threaten