

# Drug Endangered Children: Medical Effects

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# What is a Drug-Endangered Child?

- Children under 18 years of age
- Suffer physical harm or neglect from direct or indirect exposure to illegal drugs or alcohol
- Live in a house where illegal drugs are used and/or manufactured.

# What is a Drug-Endangered Child?

- Children who ingest or inhale illegal drugs in the home
- Children exposed to the toxic chemicals of home drug labs
- Infants exposed to illegal drugs in utero

# What is a Drug-Endangered Child?

- Most importantly: Infants/Children who suffer physical abuse and neglect because of their caretaker's substance abuse.

# Overview:

## Meth effects on Kids

- Direct physical effects of Methamphetamine
- Direct physical effects of Meth Lab toxicity and dangers
- Substance abuse and child neglect
- Medical protocols

# Direct Meth effects

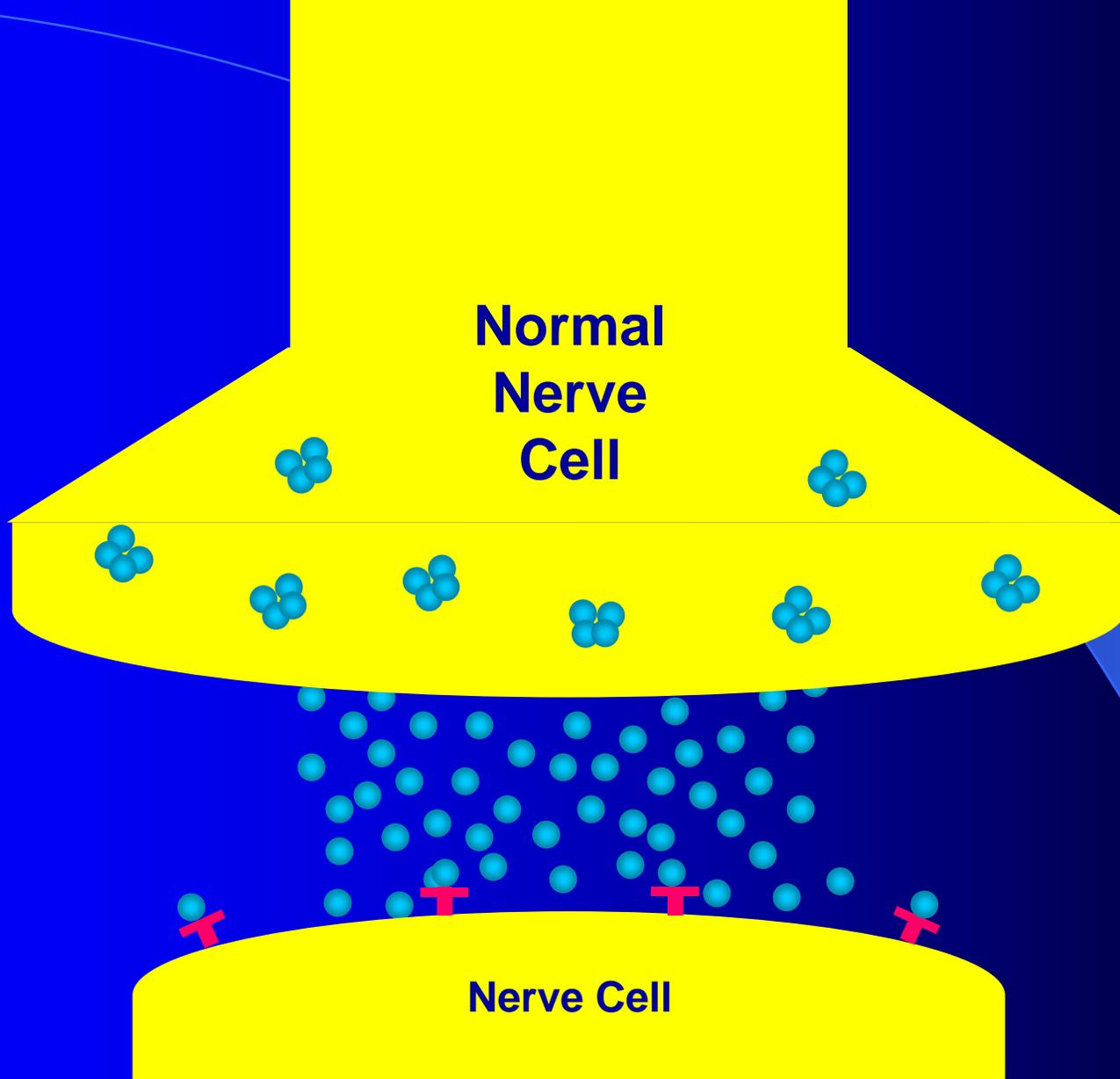
- Adults
  - Short term
  - Long term
  - Pregnancy
- Children
  - Clinical experience suggests pervasive exposure, but not well studied

# Adults Effects

- Short-term
  - Increased energy, sexual arousal, euphoria
  - Decreased appetite
  - Increased heart rate, abnormal rhythm, high blood pressure, heart attack
  - Dizziness, seizures
  - Extremely high temperature

# Adults Effects

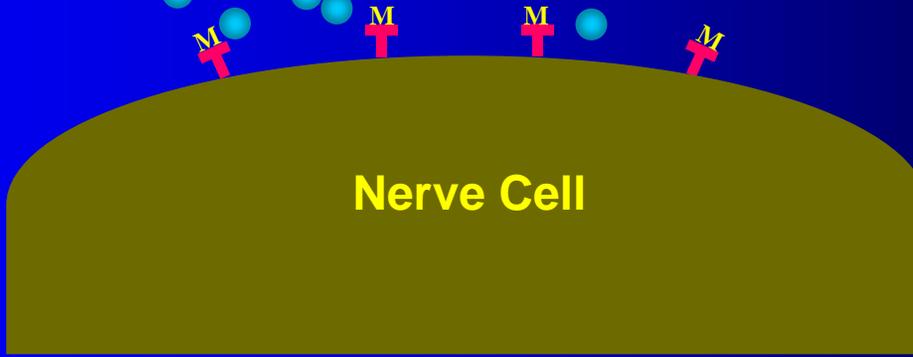
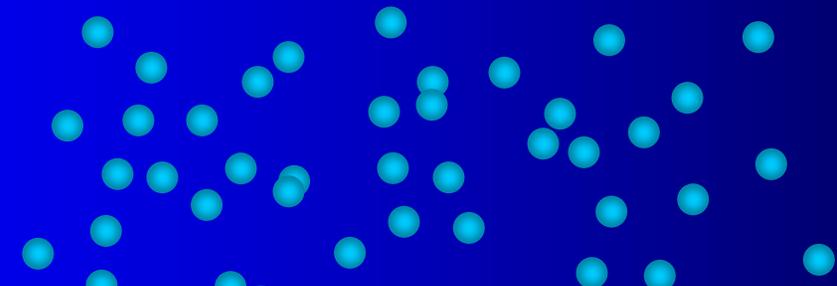
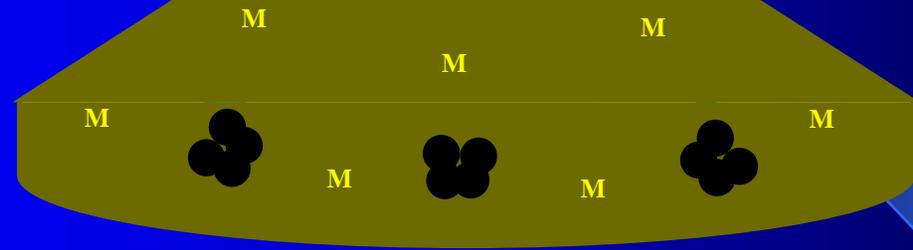
- Long-term
  - Powerful addiction: unable to stop use, increased tolerance of the drug, withdrawal symptoms
  - Neurotransmitters “turned off”
  - Tremor, uncontrolled movements (Parkinson’s Disease)
  - Paranoia, hallucinations
  - Weight loss
  - Insomnia
  - Stroke



**Normal  
Nerve  
Cell**

**Nerve Cell**

# Meth on the Brain Nerve Cell



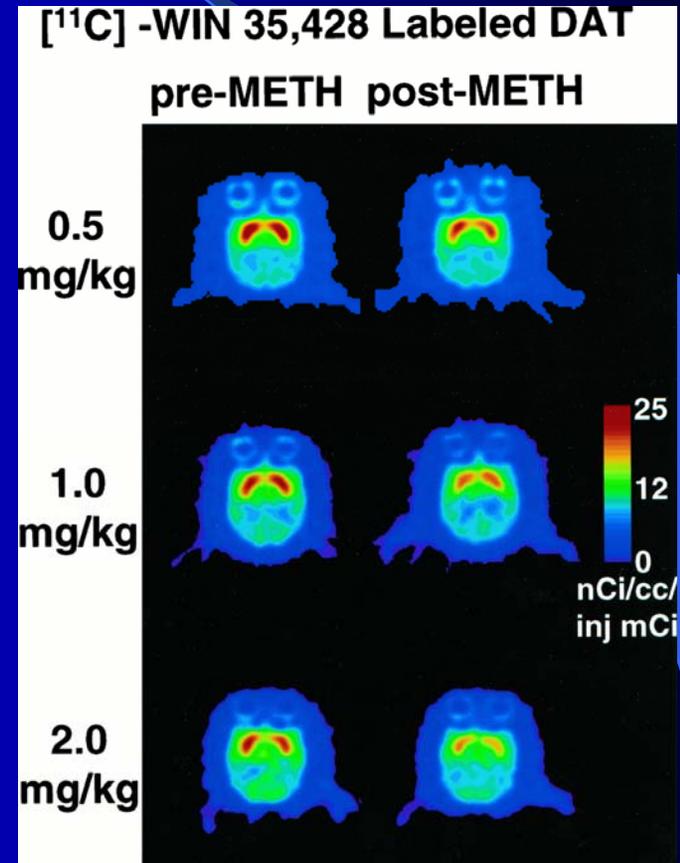
## Nerve Cell

# Adult Effects

- After Meth is stopped
- At least 6-12 months of symptoms
  - Profound depression, abnormal mood
  - Insomnia
  - Psychosis, paranoia
- Permanent brain changes
  - Brain scans show up to 80% reduction in Dopamine metabolism

# Brain Changes with Meth Use

- Baboon study N=90
- Given Meth doses equivalent to humans
- PET scan, decreased dopamine transporter activity in the caudate, 3 weeks after Meth
  - Villemagne 1997

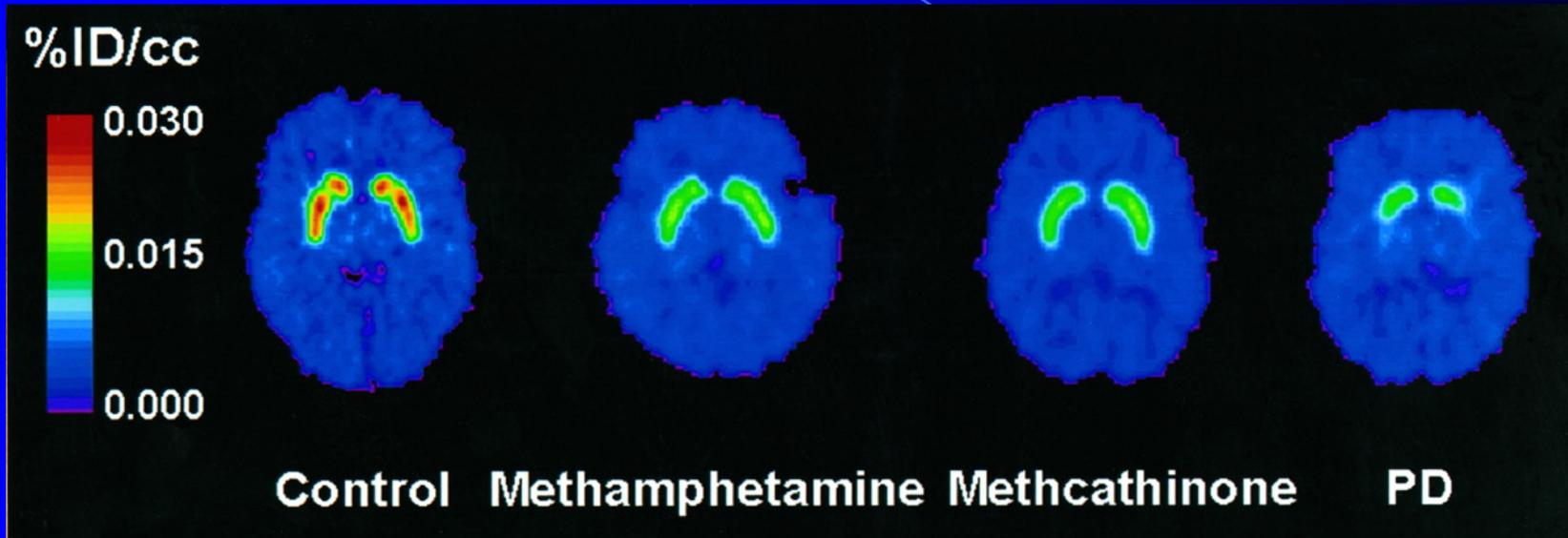


# Brain Changes with Meth Use

- Rhesus and Vervet monkey studies
- Given 3-6 months Meth doses equivalent to humans
- Decreased dopamine levels in the caudate by 80% immediately after stopping Meth and up to 6 months later

Seiden 1975, Woolverton 1989, Melega 1996 and 1997

# Brain Changes with Meth Use



PET scans comparing control, Meth users with 6 mo-5years abstinence, and patients with Parkinson's Disease, showing decreased dopamine transporter activity in the caudate and putamen. 25% decrease for Meth users, and 60% for PD.

McCann 1998

# Meth Lab Human Toxicity

- What toxins are in a home meth lab?
  - Methamphetamine powder and solution
  - Flammable solvents
  - Phosphorus
  - Lye
  - Acid
  - Iodine

# Meth Lab Human Toxicity

- Phosphorus -Inhalation of phosphine gas is lethal
- Lye or Acid - Concentrated caustic substance produces severe burns
- Iodine – eyes, nose, skin irritation or burn, abdominal pain, thyroid disease

# Meth Lab Human Toxicity

- Case report of three fatalities from phosphine gas in a Meth lab. Levels were still toxic when deputies entered. Willers, 1999
- Survey of narcotics officers c/o headache, respiratory and skin irritation, more so in active cooking labs and before use of protective gear. Burgess, 1996

# Meth Use During Pregnancy

- Mother
  - Poor prenatal care, nutrition
  - Ruptured placenta
  - Preterm labor, breech delivery
  - STDs (HIV, Hepatitis)

# Meth Use During Pregnancy

- Baby
  - Low birthweight, birth defects
  - Drug withdrawal
  - Developmental disabilities

# Children Who Ingest/inhale Illegal Drugs

- Children pick up pieces of the raw drug or carry the drug powder on their hands and put their hands in their mouth
- Children inhale the smoke in a home with multiple users
- Most identified cases are Cocaine and Methamphetamine
- Few cases reported in the literature

# Children Who Ingest/inhale Illegal Drugs

- Few cases reported in the literature
  - 18 children under 7 years old accidentally ingested methamphetamine .
  - Their parents had left drugs out in easy access
  - Symptoms:Increased heart rate, agitation, irritability and vomiting, muscle breakdown, fever,ataxia, seizure
    - Kolecki, 1998

# Children Who Ingest/inhale Illegal Drugs

- Few cases reported in the literature
  - 11 month old boy with irritability and blindness found to have urine + for meth. Symptoms resolved after 12 hours.
    - Gospe, 1995
  - 10-month-old infant died from “crack” cocaine ingestion. 2-year-old brother fed him “crack” found on floor and crib.
    - Havlik, 2000

# Children Who Ingest/inhale Illegal Drugs

- Few cases reported in the media
  - Arizona 2002 – breastfeeding infant died from Methamphetamine overdose

# Children Exposed to Toxins in Home Methamphetamine Labs

- For children, no lab cases are reported in the literature.
- UCDCMC CAARE Center data
  - 64 DEC victims screened/ >50 ng meth
  - 50 % of Level I cases are tox positive
  - 15% of Level II cases positive

# Child Abuse & Neglect and Caretaker Substance Abuse

- Neglect
- Physical abuse
- Sexual abuse
- Increased risk for accidents
- Increased risk for infant mortality

# Caretaker Substance Abuse and Neglect

- Lack of nurturing and emotional stimulation results in developmental delays, depression and attachment disorder
- Malnutrition/Failure to Thrive

# Caretaker Substance Abuse and Neglect

- Poor hygiene and infectious skin conditions (scabies, impetigo)
- Medical neglect of chronic medical problems (asthma, epilepsy)
- Little well child care/ Immunization delay
- No insurance/ frequent Emergency Room use

# Caretaker Substance Abuse and Child Neglect

2 yo boy found in  
filthy home with  
large quantity of  
meth, parent under  
the influence



# Caretaker Substance Abuse and Child Physical Abuse

- Child Homicide in Sacramento County-  
60% families had current or a history of  
substance abuse
- Children hospitalized for physical abuse  
injuries at UCD Children's Hospital  
commonly have a history of substance  
abuse

# Caretaker Substance Abuse and Child Sexual Abuse

- Sacramento County Foster Children:  
School-aged girls removed for concerns of  
parental substance abuse/neglect frequently  
disclose sexual abuse or have findings of  
sexual trauma on medical examination

# Caretaker Substance Abuse and Increased Risk for Accidents

- Lack of supervision results in increased injury from falls, burns, lacerations, drowning
- DUIs increases serious risk for injury from MVA w/wo car seat/ seatbelt
- Increases risk of injury in house fire

# Caretaker Substance Abuse and Increased Risk for Accidents

- 10-month-old female rescued from a house fire in a trailer. Drugs and paraphernalia found in easy access.
- This infant and 5 yo sibling urine tox meth+



# Caretaker Substance Abuse and Increased Risk for Accidents

- Singed hair



# Caretaker Substance Abuse and Increased Risk for Accidents

- Contact burns from falling debris



# Caretaker Substance Abuse and Infant Mortality

- Increased risk of SIDS
- Increased risk of positional overlay
- Increased risk of very premature birth and severe complications

# DEC Medical Protocol

- Identify children at risk
- Health screening
  - Medical
  - Behavioral
  - Developmental
- Treatment
- Long-term follow-up

# DEC Medical Protocol

- Health screening
  - Decontamination if needed: wash down, change clothing, shoes at scene
  - Body check health assessment at scene or immediately to health facility
  - Urine/Blood tox screen within 12 hours, “any measurable amount”, >50 ng.
  - Additional tests, studies as indicated

# DEC Medical Protocol

- Health screening
  - Forensic medical examination within 24 hours
    - Medical problems
    - Physical or sexual abuse, malnutrition
    - Labs, X-rays as needed
  - Comprehensive medical exam, behavioral and developmental assessment within 30 days

# DEC Medical Protocol

- Long-term treatment
  - Medical “home”, follow-up of all health problems
  - Mental health treatment, counseling
  - Developmental delays treatment:Speech/OT/PT

# DEC victims: In summary

- Increasing numbers of children across the U.S. are exposed to home Meth Labs with serious toxicities and dangers that have not yet been well-studied.
- Adults studies indicate life-threatening toxicities from both Methamphetamine and lab chemicals

# DEC victims: In summary

- Child neglect in substance abusing families can cause serious medical, nutritional, developmental and behavioral problems with long-term sequelae.
- Caregiver substance abuse increases rates of childhood injury and death

# Questions?

Drug-Endangered Children

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