

# Substance Abuse and the Pregnant Patient

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# OBJECTIVES

- Discuss the maternal consequences of prenatal drug use
  - Discuss the perinatal consequences of prenatal drug use
  - Present strategies to prevent or reduce prenatal substance use
  - Find out how much you learn this morning
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# YOUR PRETEST

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New research shows more pregnant women in drug treatment programs are there due to \_\_\_\_\_ use than any other drug.

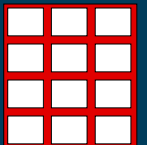
A. Cocaine

B. Methamphetamine

C. Heroin

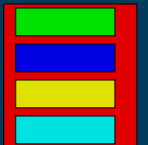
D. Alcohol

E. Marijuana



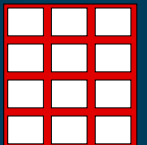
Alcohol related birth defects include defects in the baby's heart, kidney, bones, and bowel

1. True
2. False



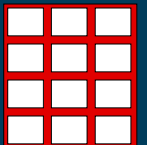
The use of marijuana during pregnancy is associated with congenital abnormalities in the fetus

1. True
2. False



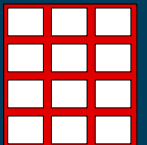
Cocaine causes vasodilation and that causes congenital abnormalities in the fetus such as congenital heart disease

1. True
2. False



The use of methamphetamines during pregnancy is associated with preterm labor and placental abruption

1. True
2. False



The most frequently abused drug during pregnancy is \_\_\_\_\_.

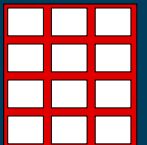
A. Cocaine

B. Methamphetamine

C. Heroin

D. Alcohol

E. Marijuana



Betty is a 25-year-old patient seen with her boyfriend just last Friday in our office from Charlotte County. She recently was diagnosed with a positive pregnancy test

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and has a history of  
substance abuse. Betty  
was referred to us for  
ultrasound evaluation from  
the ER because of ?  
pregnancy and bleeding.  
**Her ultrasound  
shows.....**

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What does she now need to know? How does she access the right care? Who should we refer her to?

What services are available in your community to help her?

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What problems might she encounter during her pregnancy? What should be our goals for her? Can we prevent her from delivering preterm? Where should she deliver?

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# OVERALL SCOPE OF SUBSTANCE ABUSE PROBLEM

- 15% of women of childbearing age (15-44 years) were substance abusers
- Approximately 34 million consumed alcoholic beverages
- 18 million current cigarette smokers
- 6 million user illicit drugs  
(44% tried marijuana, 14% cocaine)

NIDA Substance Abuse Problem  
1992 First National Survey

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# SUBSTANCE USE IN PREGNANCY

- 4 million women who gave birth in 1997 U.S.
- 757,000 drank alcohol products
- 820,00 smoked cigarettes
- 221,000 used illegal drugs

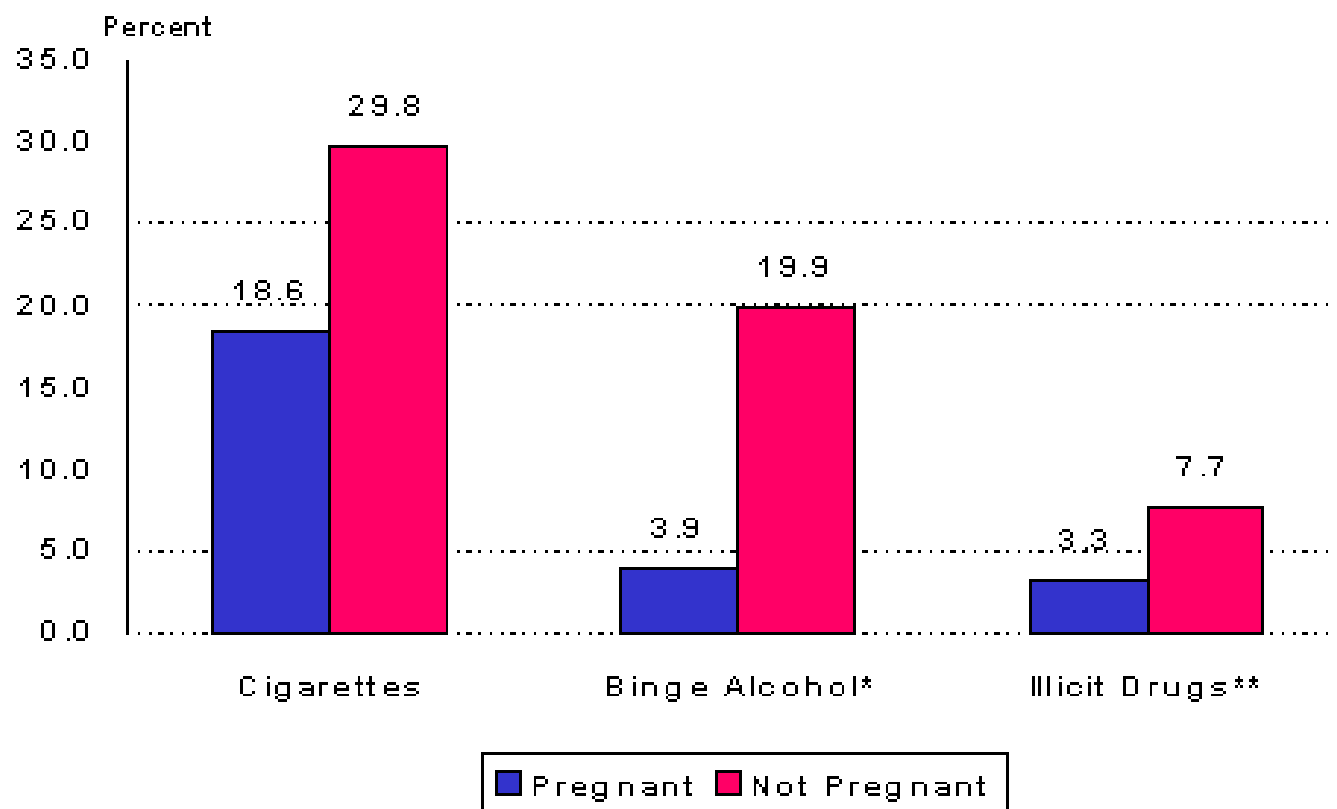
Substance Abuse During Pregnancy  
US Dept HHS 1997

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# Past Month Substance Use by Pregnancy Status

## Women 15-44 Years, United States, 1999-2000



\* Binge alcohol use is defined as drinking five or more drinks on the same occasion.

\*\* Illicit drug use includes marijuana or hashish, cocaine, inhalants, hallucinogens, heroin, or nonmedical use of psychotherapeutics.

Source: *National Household Survey on Drug Abuse Main Findings 2000*

Prepared by March of Dimes, Perinatal Data Center 2002

# SUBSTANCE USE IN PREGNANCY

- Pregnant women aged 15-44 years
- 5.5 % of the women abused drugs
- 9.8% reported using alcohol in the last month
- 4.1% reported binge alcohol use
- Less than 1% reported heavy alcohol use
- Use increased after pregnancy but not to level of nonpregnant women

Substance Use During Pregnancy National Survey 2002-2003

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# SUBSTANCE USE IN PREGNANCY

## *The Facts And They Have Not Changed*

- Blinded urine toxicology screens
- Conducted at hospitals nationally
- Showed substance abuse not just of the poor
- Same rates regardless of age, race or social class
- Specific substances differed
- Black and poor-Cocaine
- White and educated-Alcohol
- Polysubstance use was common

Clin Perinatol 26:55,1999

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# HISTORICAL PERSPECTIVES

- In 19<sup>th</sup> century cocaine and morphine isolated, cigarette rolling machines invented
  - 1<sup>st</sup> cocaine epidemic 1885-1920
  - 1906 Pure Food Drug Act required patent medicine be labeled
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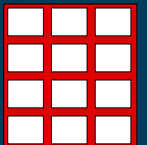
# HISTORICAL PERSPECTIVES

- 1919 Supreme Court ruled illegal to maintain addict (indefinite prescriptions)
  - 1960 Methadone maintenance introduced
  - 1980s Crack epidemic
  - 1988 Anti Drug Abuse Act: targeted casual user and dealer, shift → enforcement vs. treatment (warning pregnant women)
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# DIAGNOSTIC CRITERIA: SUBSTANCE ABUSE

A maladaptive pattern of substance use manifested by 1 or more of the following 12 month period

1. Use results in failure to fulfill major role obligation
  - work
  - school
  - home
2. Recurrent use in physically hazardous situations
3. Recurrent substance-related legal problems
4. Continued use despite persistent or recurrent social or interpersonal problems

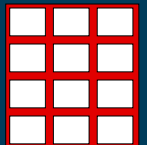


# DIAGNOSTIC CRITERIA: SUBSTANCE DEPENDENCE

A maladaptive pattern of substance use leading to clinically significant impairment or distress manifested by 3 or more following 12 month period

1. Tolerance
2. Withdrawal
3. Larger amounts of substance
4. Persistent desire
5. Time mismanagement
6. Give up important activities
7. Persistent use

DSM IV 1994 APA



# MATERNAL CONSEQUENCES

- Alcohol
  - Marijuana
  - Cocaine
  - Heroin
  - Phencyclidine (PCP)
  - Methamphetamine
  - Smoking
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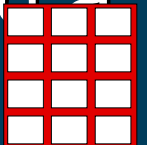


# ALCOHOL

- Legally socially acceptable drug
  - In 1990 Household Survey, 80% of women reported lifetime use
  - 61.5% reported weekly use
  - Alcohol classic teratogen
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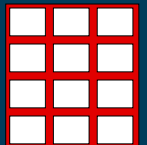
# ALCOHOL ADVERSE MATERNAL EFFECTS

- Women have higher blood ethanol concentration than men for an equivalent dose of ethanol
- Increased risk
  1. Breast cancer
  2. Cirrhosis
  3. Psychiatric symptoms (depression)
  4. Spontaneous abortions
- Association between alcohol abuse and a history of physical and sexual abuse



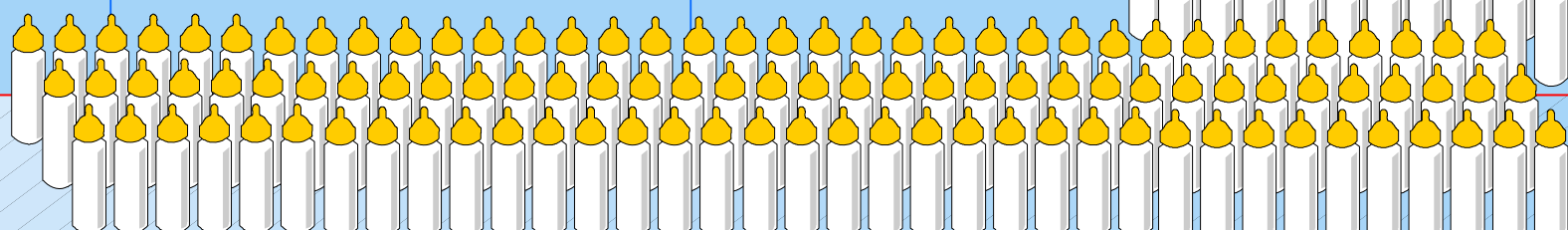
# Alcohol (Neonate)

- Fetal Alcohol Syndrome
  1. abnormal facial features
  2. Growth deficiencies
  3. CNS –Mental Retardation
- ARND (Alcohol Related Neurodevelopmental Disorder)
  1. Learning difficulties
  2. Poor school performance
  3. Poor impulse control
- ARBD (Alcohol Related Birth Defects)
  1. Malformation skeletal system
  2. Defects, heart, kidney, bones, auditory system



# Drinking During Pregnancy

Drinks Per Day	Cumulative Fetal Exposure (Drinks per day x 270)	Fetal Exposure to Absolute Alcohol in Oz.*	Full Baby Bottles
1	270	135	15
2	540	270	33
10	2700	1350	168



# ALCOHOL SCREENING

- 1977 ACOG recommended screening
  - 1984 Federal warning abstain alcohol use
  - Survey Obstetricians report screening 97% of pregnant women
  - Only 25% used standardized screening tool.
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# UNIVERSAL ALCOHOL SCREENING

- T-ACE
  - TWEAK
- 
-

# T-ACE

- |   |                   |
|---|-------------------|
| T: Tolerance<br>(# drinks to feel high)   | 2 drinks=2 points |
| A: Annoyed<br>(criticizing drinking)      | Yes= 1 point      |
| C: Cut down on drinking                   | Yes= 1 point      |
| E: Eye opener<br>(early morning drinking) | Yes= 1 point      |

Score 2 or more positive screen

# TWEAK

T: Tolerance (how many drinks can you hold)	≥5 = 2 points
W: Friends worried or complain	Yes = 2 points
E: Eye opener (early morning drinking)	Yes = 1 point
A: Amnesia	Yes = 1 point
K(C): need to cut down	Yes = 1 point

Score 2 or more positive screen



# MARIJUANA

- Marijuana found in leaves of the hemp plant (*cannabis sativa*)
  - Most commonly used illicit drug in US 1998, estimated 2.1 million people new users
  - No national survey data in pregnancy 6%-35% in some populations
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# MARIJUANA ADVERSE MATERNAL EFFECTS

- CNS depression
  - Cardiovascular stimulant
  - Respiratory problems (bronchitis, sinusitis, pharyngitis)
  - Learning & social behavior (changes in attention, memory, info processing)
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# MARIJUANA PERINATAL EFFECTS

- Controversial or no clear association
  - Doubt increase in preterm birth
  - Doubt decrease in birth weight
  - No evidence of congenital anomalies
  - Equivocal relationship neurobehavioral outcome
  - No negative long term follow-up growth
  - THC present in breast milk
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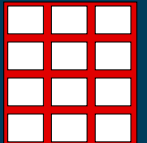


# COCAINE

- Cocaine available in two forms cocaine HCl, free base
  - 45,000 women used cocaine in pregnancy in 1992
  - Prevalence prenatal population 5-17% large urban hospitals
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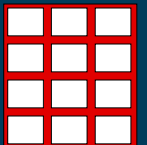
# COCAINE ADVERSE MATERNAL EFFECTS

- Possible systemic complications
  1. cardiovascular
  2. tachycardia and cardiac arrhythmia
  3. vasoconstriction and hypotension
- Central Nervous System
  1. hyperthermia
  2. CVA
  3. Seizures
  4. Paranoid ideation



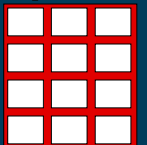
# COCAINE PERINATAL EFFECTS

- Preterm labor and delivery (equivocal)
  1. positive studies (did not control for use other drugs)
  2. prospective studies no effect
- Impaired fetal growth (few studies control for other risk factors)



# COCAINE PERINATAL EFFECTS

- Congenital Anomalies (equivocal)
  1. limb reduction defects
  2. genitourinary tract malformations
  3. congenital heart disease
  4. central nervous system
- Neurobehavioral (questionable withdrawal)
- Long term follow-up (Inconclusive)
- SIDS (equivocal)





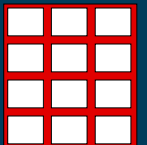


# HEROIN

- Synthetic opioid derived from poppy seed (papaver somniferum)
  - Estimated 250,000 women IVDA  
90% of reproductive age
  - 1996 National Household Survey 216,000 report use in pregnancy
  - Lipid soluble rapidly crosses blood-brain barrier
  - Duration high 3-5 hours
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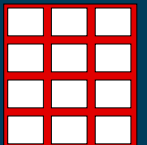
# HEROIN MATERNAL ADVERSE EFFECTS

- Short term
  1. somnolence
    - (a) altered mentation
  2. Cardio-respiratory arrest (overdose)



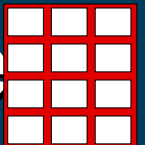
# HEROIN MATERNAL ADVERSE EFFECTS

- Long term
  1. physiologic withdrawal
  2. hepatitis B and C
  3. STDS, HIV
  4. endocarditis
  5. abscesses
  6. pneumonia and TB



# HEROIN PERINATAL EFFECTS

- Fetal growth
  1. LBW
  2. IUGR
- Premature birth (equivocal)
- Meconium
- Stillbirth (equivocal)
- Neonatal Abstinence Syndrome



# WHAT'S WRONG WITH JONAH?

Jonah's mother was a heroin addict. Shortly after birth, it was obvious Jonah was in withdrawal. His jittery movements and crying persisted for the next 2 days and there was little anyone could do to console him. He scratched his face trying to get his hands to his mouth. His knees and elbows were rubbed raw from his agitated movements, and the muscles in his tiny legs were so stiff that it was difficult to straighten his legs to diaper him.





10mg



20mg



80mg

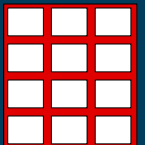


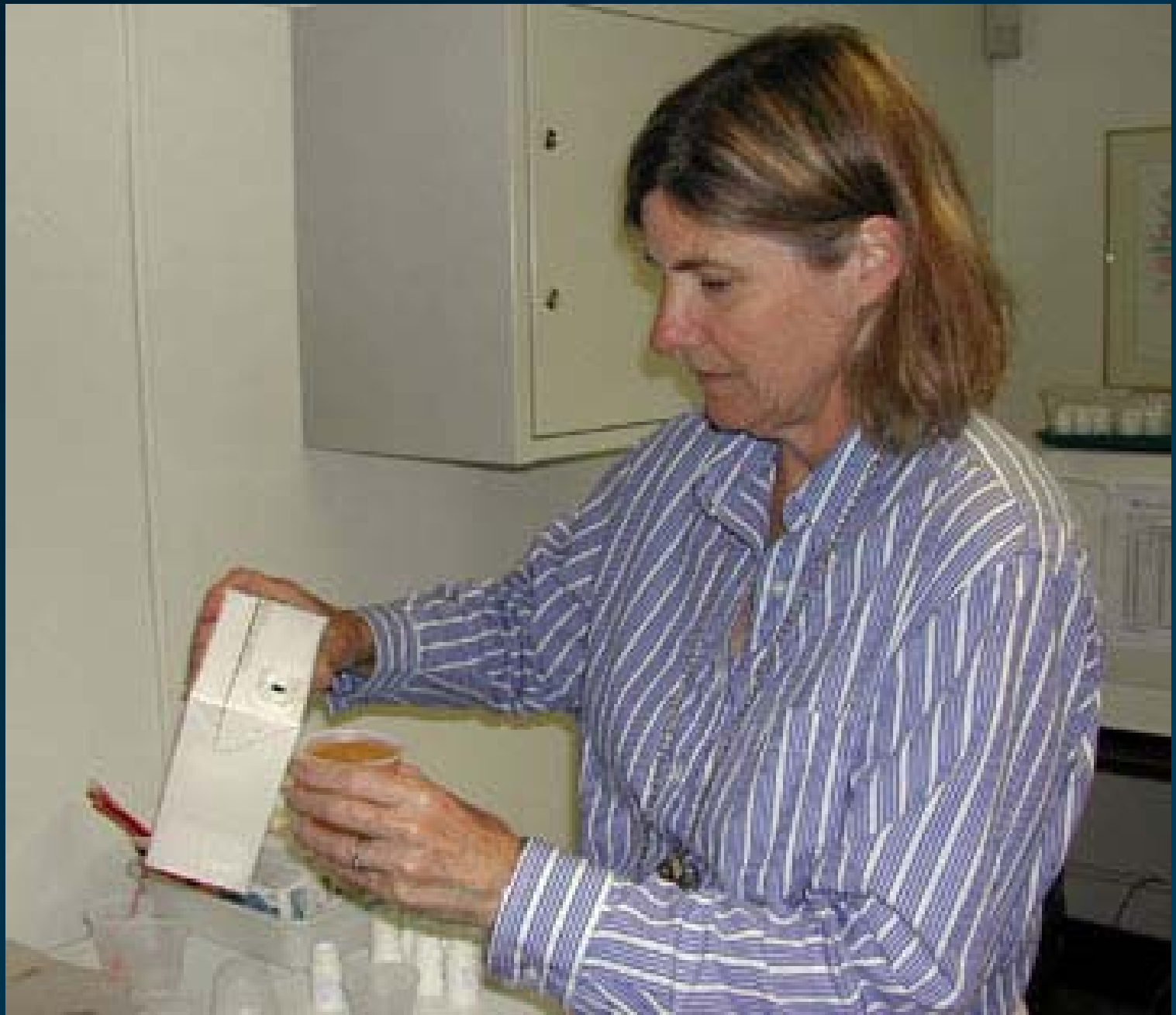
160mg



# METHADONE (HEROIN)

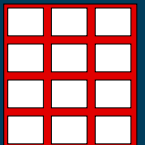
- Principle → short acting IV → long acting methadone to relieve drug craving and withdrawal
- Methadone
  1. synthetic opioid blocks effect of heroin
  2. long half life allows daily dosing
  3. no euphoria, no interference with daily activity
  4. May breast feed
  5. Maintain dose during pregnancy
- New agents
  1. levomethadyl-acetate (LAAM)
  2. buprenorphine (combine with naloxone)





# METHADONE PERINATAL EFFECTS

- Pregnancy
  1. continuation of normal daily activity
  2. decrease in associated maternal morbidity
- Neonatal Abstinence Syndrome
  1. occurs on day 2 - 3 up to a week
  2. similar to heroin withdrawal syndrome
  3. Naloxone (narcane) contraindicated severe withdrawal



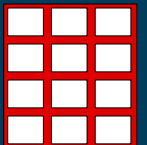


# PHENCYCLIDINE(PCP)

- 1<sup>st</sup> used in 1950s general anesthetic agent in surgical and obstetric patients
  - Crosses placenta and fetal levels may exceed maternal levels
  - Most commonly snorted or ingested dose 5 -10 mg
  - On the rise in this area
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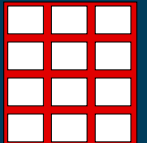
# PCP MATERNAL ADVERSE EFFECTS

- Low dose ( $\leq 5$  mg)
  1. agitation
  2. disorganized thought
  3. emotional lability
- Moderate dose
  1. anesthesia
  2. confusion



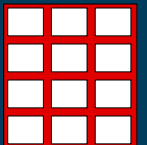
# PCP MATERNAL ADVERSE EFFECTS

- Moderate dose
  1. rigidity
  2. psychotic reactions
- High dose ( $\geq 10$  mg)
  1. coma
  2. severe hypertension
  3. convulsions



# PCP PERINATAL EFFECTS

- Crosses placenta and fetal levels may exceed maternal levels
- Little known about effects on pregnancy
  1. Congenital anomalies (case report)
  2. Meta-analysis 206 infants no anomalies
  3. IUGR (retrospective)
  4. Preterm delivery (no studies)





# METHAMPHETAMINE

- “Meth”, speed, crystal, glass and crunk
  - Closely related to amphetamine but much longer lasting
  - Less than 1% pregnant women used in past year
  - Most frequent reason for being in drug rehab program
  - Ingested, IV, smoked (Ice)
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# METHAMPHETAMINE

- "Ice" is recrystallised methamphetamine hydrochloride, a potent stimulant
  - Ice generally takes the form of clear crystallized chunks. It will dissolve in water and breaks down to smaller particles
  - Ice induces a profound sense of euphoria
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# METHAMPHETAMINE

- It is a "power drug" whose use is typically followed by prolonged depression and fatigue
  - In contrast to base cocaine, smoking methamphetamine will extend its effects for up to 24 hours per ingestion
  - It is very addictive
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# METHAMPHETAMINE MATERNAL ADVERSE EFFECTS

- Short term
    - Tachycardia
    - Wakefulness
    - Decreased appetite
    - Sexually transmitted diseases
  - Long term
    - Toxic psychosis
    - Hallucinations
    - Change in brain structure
    - Severe dental problems
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# METAMPHETAMINE PERINATAL EFFECTS

- Spontaneous Abortion
  - IUGR
  - Premature Labor
  - Placental abruption
  - Withdrawal syndrome
  - Long term effects?
  - Potential bias: small sample size, maternal use of other drugs
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# PREGNANCY MANAGEMENT

- Prenatal Care
  - Substance abuse treatment
    - First Step
  - Psychosocial services
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# PRENATAL CARE

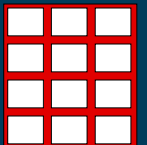
- Drug abusing pregnant women 7X less likely to receive prenatal care vs. women not using drugs
  - Barriers (fear, physiologic, psychological)
  - Establish special care prenatal clinic
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# PRENATAL CARE

- Educate patient about adverse outcome effects
  - Screen for domestic violence
  - Screen for STDs, hepatitis B and C, TB
  - Refer to drug counseling program
  - Monitor with urine toxicology
  - Sequential antepartum assessment of growth
  - Refer newborn to Pediatrician
  - Close postpartum follow-up
- 
-

# ROLE HEALTH CARE PROVIDER

- Screening, identifying and counseling women regarding substance use
- Routine screening in history taking
  1. No physical symptoms in majority of abusers
  2. Screen everyone since no predictors
- Know local community resources

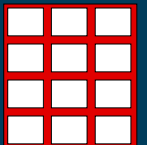


# SUBSTANCE ABUSE TREATMENT

- Drug addiction is a treatable disease
  - No single treatment is appropriate for all individuals
  - Recovery from drug addiction is a long term process (relapses)
  - Effectiveness is dependent on remaining in treatment
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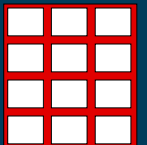
# SUBSTANCE ABUSE TREATMENT

- Matching multiple needs is critical
  1. medical
  2. psychosocial
  3. social
  4. legal
  5. vocational



# TREATMENT CRITICAL COMPONENTS

- Detoxification
- Medication combined with counseling
- Behavioral therapies skill-building, problem–solving to prevent relapses
- Assess for and treat coexisting conditions
  1. mental disorders
  2. Infectious diseases



# PSYCHOSOCIAL SERVICES

- Comprehensive psychosocial assessment
  - Case management
  - Disposition conference
  - Screen for physical and sexual abuse
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# TREATMENT COST

## Treatment Cost Considerations

Year in Prison	\$53-\$71/day	\$25,900
Outpatient	\$15/day X 120 days	\$1,800
Methadone maintenance	\$13/day X 300 days	\$3,900
Residential (short term)	\$130/day X 30 days+ \$400 x 25 weeks	\$4,400
Residential (long term)	\$49/day X 140 days	\$6,800

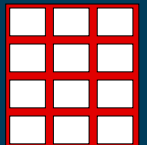
# YOUR POSTTEST

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New research shows more pregnant women in drug treatment programs are there due to \_\_\_\_\_ use than any other drug.

- A. Cocaine
- B. Methamphetamine
- C. Heroin
- D. Alcohol
- E. Marijuana



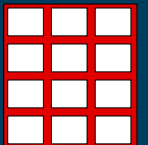
Answer

**B**



Alcohol related birth defects include defects in the baby's heart, kidney, bones, and bowel

1. True
2. False



Answer

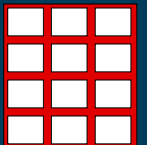
**False**

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The use of marijuana during pregnancy is associated with congenital abnormalities in the fetus

1. True
2. False



Answer

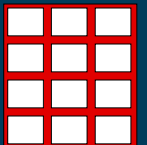
**False**

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Cocaine causes vasodilation and that causes congenital abnormalities in the fetus such as congenital heart disease

1. True
2. False



Answer

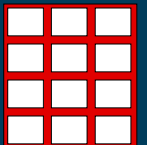
**False**

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The use of methamphetamines during pregnancy is associated with preterm labor and placental abruption

1. True
2. False



Answer

**True**

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The most frequently abused drug during pregnancy is \_\_\_\_\_.

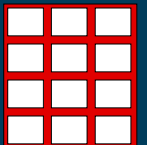
A. Cocaine

B. Methamphetamine

C. Heroin

D. Alcohol

E. Marijuana



Answer

**E**



# What did you learn this morning?

- A. Great deal. Dr. Hill was the “bestest” speaker ever!
  - B. A lot. It was worth my time.
  - C. I am not sure but I would like to think that I did.
  - D. Not much but I will be back next week
  - E. Nothing! I should have slept in or went to the Serving Spoon for breakfast.
- 
-

Answer

**A**



# Thank You



# For Listening To Me

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