

Understanding FASD in the Context of Other Drug Use and Pregnancy

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Overview

- Review
 - Effects of Individual Drugs on Fetal Development, Mom's Health, and Birth Outcome
- Alcohol's Effect on Pregnancy
- Supporting Pregnant Mothers
 - Evidence-based Interventions
 - Resources



Scope of the Problem

Kuczkowski, 2007

- Substance use on the rise worldwide
- Oftentimes first suspected when medically managing another conditions:
 - Hepatitis
 - HIV
 - Trauma
 - ***Pregnancy***
- Difficult to predict exact maternal or fetal implications.



Scope of the Problem

- Substances most commonly used during pregnancy:
 - Cocaine
 - Amphetamines
 - Opioids
 - Alcohol
 - Marijuana
 - Tobacco
 - Caffeine
 - Solvents



Cocaine

- Women are 49% more likely to use another drug during pregnancy if they are using cocaine
- 98% of use during pregnancy involves at least one other drug
 - Lester et al., 2007
- Fewer women who use cocaine during pregnancy receive prenatal care
 - Shankaran et al., 2007



Cocaine

- Negative relationship between 3rd trimester use and birth length and head circumference
 - Even after controlling for marijuana, tobacco and alcohol



Cocaine

Effects on Mom

- Hypertension
- Tachycardia
- Can cause placental problems
 - Decreased blood flow
 - Increased risk for abruption
 - Kuczowski, 2007

Effects on Fetus

- Mild beh. Disturbances
 - NOT long-term
- No major neur. deficits
- ↑ LBW or prematurity
- Effects on development inconsistent
 - Shankaran, 2007
- Best understood in context of poly drug use
 - Lester et al., 2002



Amphetamines

- Stimulants of the central nervous system
- Effects can be similar to cocaine
- Originally developed to treat asthma, narcolepsy, and hyperactivity



Amphetamines

Effects on Mom

- CNS stimulant
- May be mistaken for pre-eclampsia
 - Co-occurring proteinuric hypertension
 - Kuczkowski, 2007
- Placental abruption
- Low risk when used as prescribed for medical reasons
 - OTIS, 2010

Effects on Fetus

- ↑ Risk preterm delivery
- IUGR/Low birth weight
- May experience withdrawal symptoms
- Cardiac anomalies
- Low risk for birth defects when used as prescribed for medical reasons
 - Kuczkowski, 2007



Methamphetamine

Effects on Mom

- Acts as stimulant
- Fast heart rate
- Sweating
- Loss of appetite
- Anxiety
- Trouble sleeping
 - OTIS, 2010

Effects on Fetus

- Prematurity
- Miscarriage
- Problems in newborn period
 - Jitteriness, trouble sleeping, trouble feeding
 - Usually resolved
- Poor muscle tone
 - May last for several mo.
 - OTIS, 2010



Opiates/Opioids

- Although the term "opiate" is often used as a synonym for "opioid", the term is more properly limited to the natural alkaloids found in the resin of the opium poppy and, more loosely, the semi-synthetic opioids derived from them.
- Includes morphine, meperidine, heroin, fentanyl, methadone



Opiates/Opioids

- Analgesic effects due to decreased perception of pain, decreased reaction to pain as well as increased pain tolerance.
- Physical dependence can develop with ongoing administration, leading to withdrawal symptoms upon abrupt discontinuation
 - [News-medical.net](http://news-medical.net)



Opiates/Opioids

Effects on Mom

- Sedation
- Respiratory depression
- Dependence
- Currently treated with methadone
 - Hukat et al., 2012

Effects on Fetus

- IUGR
- Distress
- Behavioral problems and attention
 - BUT, by 2 yrs within 'normal' range
- 50-75% of infants require meds for withdrawal
 - Kakko et al., 2008



Alcohol

- Prenatal alcohol exposure is a leading preventable cause of physical and cognitive birth defects



Alcohol

Effects on Mom

- Increased risk health issues including:
 - Liver Disease
 - Cancer
 - Weight/Nutrition issues
 - Mood Disorders
 - Learning/memory problems
 - Violence
 - Injuries

Effects on Fetus

- Increased risk for:
 - Low birth weight
 - CNS damage
 - Facial dysmorphia
 - Developmental delays
 - Cognitive delays
 - Behavioral disorders



Fetal Alcohol Spectrum Disorders (FASD)

- An umbrella term used to describe the range of effects that can occur in individuals who were prenatally exposed to alcohol
- Effects may be physical, mental, behavioral and or learning disabilities
- ***NOT*** intended as a clinical diagnosis
 - *FASD Center for Excellence*





FAS Craniofacial Features





**Photo: Adult with FAS
(used with permission of
Teresa Kellerman/
www.come-over.to/FASCRC)**





Photo courtesy of the University of Louisville Fetal Alcohol Spectrum Disorders (FASD) Clinic - Weisskopf Child Evaluation Center, and the FASD Southeast Regional Training Center at Meharry Medical College Department of Family and Community Medicine: FASDsoutheast.org. Any use of this photo requires written permission from the University of Louisville FASD Clinic - Weisskopf Child Evaluation Center and the proper acknowledgement as written in this caption.



Nicotine

- Risks of smoking are well documented
- Risks during pregnancy are well documented
 - Dearth in literature past 1990's
- Yet, women continue to smoke...
 - The more cigarettes smoked, the greater the risk
 - Second hand smoke can be harmful, too!



Nicotine

- Carbon monoxide and nicotine may interfere with fetal oxygen supply
- Readily crosses placenta
 - can reach concentrations higher than maternal levels
- Nicotine concentrates in fetal blood, amniotic fluid and breast milk
 - www.nida.nih.gov



Nicotine

Effects on Mom

- Lower amount of oxygen
- Increased risk
 - Cancer
 - Heart disease
 - Lung disease
 - Allergies
 - Asthma

Effects on Fetus

- Lower oxygen levels
- ↑ Risk for:
 - Still birth
 - Preterm delivery
 - Respiratory problems
 - Low birth weight
 - SIDS



Marijuana

- May decrease fertility
 - May slow fetal growth
 - Slightly decrease length of pregnancy
 - Mainly seen in women who use regularly (≥ 6 times/week)
 - After delivery, some appear to go through 'withdrawal-like' symptoms
 - Crying, trembling
- Reproductive Toxicology Center. Cannabis. Updated 12/2005



What Can Happen After Birth?

Neonatal Abstinence Syndrome

- Cluster of symptoms that occur in some newborns who were exposed to opiates or narcotic drugs in utero
 - i.e., heroin, codeine, oxycodone (OxyContin) methadone or buprenorphine



Neonatal Abstinence Syndrome

- Symptoms depend on
 - Type of drug
 - Mother's metabolism
 - Amount
 - Duration of exposure
 - Gestational age of baby
 - i.e., full term vs. premature
- Can begin 1-3 days after birth, or may take 5-10 to appear
 - U.S. National Library of Medicine (2014), nlm.nih.gov



Neonatal Abstinence Syndrome

Symptoms can include:

- Blotchy skin coloring
- Diarrhea
- Excessive crying or high-pitched crying
- Excessive sucking
- Fever
- Hyperactive reflexes
- Increased muscle tone
- Irritability
- Poor feeding
- Rapid breathing
- Seizures
- Sleep problems
- Slow weight gain
- Stuffy nose, sneezing
- Sweating
- Trembling (tremors)
- Vomiting

Screening Tool Available: *Modified Finnegan Neonatal Abstinence Scoring Tool*



Wisconsin DHS Fact Sheet

- <https://www.dhs.wisconsin.gov/publications/p01124.pdf>



Combination Drug Use



Combination Drug Use

2011 Review Article: Chen & Maier

- *Combination Drug Use and Risk for Fetal Harm*
 - Women ages 18-24
 - 25.5% use both alcohol and tobacco
 - 12.5% use alcohol and another drug
 - Both categories higher than male counterparts
 - Pharmacokinetic interactions must be considered



Pharmacokinetics

- Pharmacokinetics: what the body does to the drug (absorption, bioavailability, metabolism...)
 - vs. pharmacodynamics: what the drug does to the body
- Interactions to be considered
 - Changes how drugs are absorbed, distributed, metabolized and eliminated
 - Pharmacokinetics of an individual drug may be well characterized...but
 - With multiple drugs, one drug can 'seriously and unpredictably' alter concentration, bioavailability and 'net effect' of the drug(s)
 - Combination may form a metabolite more toxic than either drug



Pharmacokinetics

- BAC levels are altered when another drug is added
- Examples
 - Aspirin, cimetidine (Tagamet[®]), ranitidine (Zantac[®]) interact with alcohol metabolism
 - ↑ BAC
 - Thought to ↑ alcohol-mediated damage
 - Cigarette smoking
 - May ↓ peak BAC
 - May lead to more consumption if ‘chasing the high’



Pharmacokinetics

- Examples, cont
 - Cocaine
 - Combination with alcohol more harmful than either drug alone
 - Forms toxic metabolite 'cocaethylene'
 - May account for prolonged euphoria
 - Diet soda
- More research into effects on fetus is developing
- For now...consider with the families you serve!



Also consider...

- Genetics of biological parents
 - Including mental health disorders
- Environment
 - *SES*
 - *Violence*
 - *Nutrition*
 - *Trauma*



Effect of Trauma on Development

- Childhood abuse and other 'extreme' stressors
 - Lasting effects on brain areas involved in memory and emotion
 - In particular: hippocampus
 - Bremner, 1999
- Child abuse, neglect, and repeated exposure to partner violence
 - Disrupt early brain development
 - Compromise immune system
 - CDC, 2008



Effect of Trauma on Development

- Sexual abuse in girls
 - Sig. ↑ In stress-related hormones in urine
 - ↑ in suicidal ideation, attempts and dysthymia
 - De-Bellis et al., 1994



Effect of Trauma on Development

- Childhood trauma appears to be a ‘potent risk factor for chronic fatigue syndrome (CFS).’
 - Exposure to trauma associated with 6x greater risk of CFS
 - ‘Biological correlate of vulnerability’ (decreased cortisol)
 - Hypocortisolism reflects marker for risk of developing CFS
 - Heim et al., 2009
- Population may be seen as “faking.”



Prevention Approaches for Healthy Start Staff



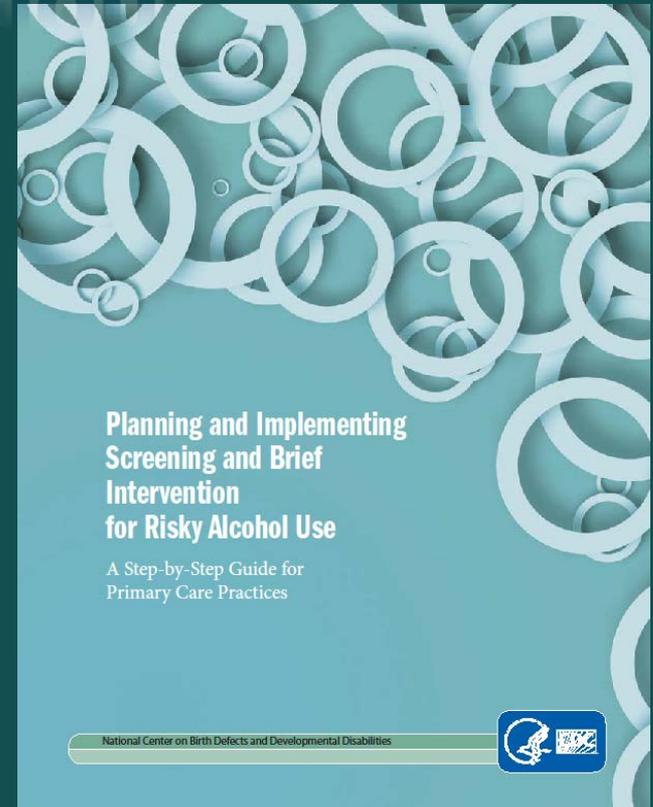
aSBI: Alcohol Screening and Brief Intervention

SBI

Brief Counseling

SBIRT

Brief
Intervention



Tools at your Disposal

- Screening tools for Healthy Start
- Brief alcohol screening tools
- Observation
- Access
- Trust



Screening Tools for Healthy Start

- Demographic screening tool (8 questions)
- Pregnancy History Screening Tool (12 questions w/skips)
- Preconception Screening Tool (45 questions + subQs)
- Prenatal Screening Tool (59 questions + subQs)
- Interconception/Parenting Screening Tool (61 questions + subQs)



Brief Alcohol Screening Tools



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Single Question

- How many times in the past year have you had X or more drinks in a day?
 - (X = 5 for men and 4 for women)
 - A positive response = ≥ 1
 - Positive answer of 1 or more times detects 98% of at-risk US drinkers



AUDIT-1-3

- How often do you have a drink containing alcohol?
- How many drinks containing alcohol do you have on a typical day you are drinking?
- How often do you have X (5 for men; 4 for women & men over age 65) or more drinks on one occasion?
 - If screen positive—follow-up with AUDIT (US)



Administration Options

- Self-Report
 - Face-to-Face Interview/screen
 - Computer-Assisted Interviews
- Laboratory Screening Measures



Other Options

- Timeline Follow Back (TLFB)
- Etc...
- Short Questionnaires
 - AUDIT (US)
 - T-ACE
 - TWEAK
 - CAGE
 - RAPS
 - FAST

NOTE: Use appropriate screen for intended outcome (risky drinking vs. dependence)



Scoring caution...

- A safe dose or pattern is not consistent across individuals
- Scoring options should be viewed as “guidelines”
- Even low dose or moderate alcohol use may be of concern for individuals with certain medical conditions, taking certain medications, or who are pregnant.



Other Available “Tools”



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Observation

- In the absence of formal screening tools...observe
 - Empty bottles in the house
 - Smell of stale alcohol
 - In home or on person
 - Parents who seem 'hung over'
 - Constant conversations about alcohol use



Access and Trust

- Access to family members
- History of helpful service
 - Increasing trust over time
 - Understanding of multi-dimensional aspects of the family



Make the Conversation “Routine”

- Have the discussion with EVERYBODY
 - No single family/individual will feel targeted
- Accept ‘no’ for an answer
 - You have the luxury of an ongoing relationship
- Use motivational interviewing
 - “Would it be okay if we talked about your alcohol use now. This is a new initiative we’re starting—and we’re talking with all families...”



Continue to Build Trust

- If you feel the responses are not accurate—continue to build trust
- Your Healthy Start team will help you with training.



Brief Intervention (BI)

- Effective, low-cost treatment alternative
Time-limited, typically ≤ 4 sessions
- Self-help
- For use in non-dependent individuals (or for referral of dependent individuals)
- Performed in non-treatment clinical setting by non-AODA professionals
- Combines techniques of Motivational Interviewing, Cognitive Behavior Therapy



Brief Interventions Can Be...

- Less expensive
- Offered via a variety of methods
 - Face-to-face
 - Individual
 - Group
 - By Telephone (including texting)
 - Web-based
- Used by a variety of clinical and community staff, including HS staff



Using aSBI to Prevent FASDs

- Assess for 'risk of alcohol-exposed pregnancy' (AEP)
 - Drinking above recommended levels +
 - Sexually active (specifically vaginal intercourse with a man) +
 - Not using effective contraception - or not using contraception consistently =

Risk for alcohol-exposed pregnancy (AEP)



Choosing an Intervention

- Dual Focus
 - Address alcohol use and pregnancy risk
- Healthy Start will provide training on Project CHOICES and appropriate adaptations!



Project CHOICES

- Focuses on avoiding an alcohol-exposed pregnancy
- Tailored to meet each woman where she's at
- 2 or 4 session model
- Has been adapted by many programs to include
 - 1 session model, 2-session adaptations, cultural adaptations



Is Brief Intervention for Everybody?

- NO--
 - Alcohol Dependence
 - Conditions requiring medical management
 - Individuals with cognitive limitations
 - Whether developmental in nature, or due to mental health or chronic drinking problems
- Can act as a “screening” tool for referral





Potential Challenges



Things to Consider...

- Competing needs of family
 - Food, shelter, safety
 - Employment
- Potential cognitive challenges of family members



Parents with Cognitive Challenges

- 6.6 million children have parents with disabilities
 - 2.3% of parents with disabilities have cognitive limitations
 - And there may be many more not diagnosed
 - Median income \$35,000
 - American Community Survey 2008-2009 Data



When to Dig Deeper

- It's not always "won't" ...
 - ...it may be "can't"
- Observe informally. For example:
 - Are parents active participants, or agree with all suggestions?
 - Do they cook or usually eat prepared/microwaveable food?
 - Is there a variety of food in the refrigerator?
 - Do they have a strong social network?
 - Is household organized?
 - Are bills paid on time (taking into account financial constraints)



Screening for FASD

- Collect information:
 - Birth data
 - Maternal alcohol history
 - Developmental milestones/delays
 - Physical/cognitive diagnoses
 - Neuropsych exam results

FASD Education and Outreach Projects, University of Wisconsin-Madison School of Medicine and Public Health
Department of Family Medicine and Community Health (608-262-6590)



FASD Prescreen

Date: ___/___/___ Patient knows s/he is being assessed for FASD: Yes No
 Name of Individual: _____ Date of Birth: ___/___/___
 Address: _____
 Primary Caregiver(s): _____ Telephone: _____
 Self Birth Parent Adoptive Parent (at age: ___) Foster Parent (at age ___) Other _____
 Age of first placement outside birth family home: _____

Maternal Alcohol Use During Pregnancy
<input type="checkbox"/> Binge Drinking (≥ 4 drinks/occasion) # of occasions = _____
Frequency Per Week <input type="checkbox"/> None <input type="checkbox"/> 1 Day <input type="checkbox"/> 2-3 Days <input type="checkbox"/> ≥ 4 Days <input type="checkbox"/> Unknown
Quantity <input type="checkbox"/> None <input type="checkbox"/> 1 drink <input type="checkbox"/> 2-3 Drinks <input type="checkbox"/> ≥ 4 Drinks
Alcohol Use By Trimester <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third <input type="checkbox"/> Unknown
Reported by: _____ Notes: _____

Birth/Developmental
Term Pregnancy: <input type="checkbox"/> Yes <input type="checkbox"/> No Week _____
Delivery Complications: _____
Birth Weight: _____ <input type="checkbox"/> $<10\%$
Birth Length: _____ <input type="checkbox"/> $<10\%$
Current Weight: _____ <input type="checkbox"/> $<10\%$
Current Height: _____ <input type="checkbox"/> $<10\%$
OFC: _____ <input type="checkbox"/> $<10\%$

Major Birth Defects
<input type="checkbox"/> Cleft Palate <input type="checkbox"/> Heart Defect
<input type="checkbox"/> Hands/Arms <input type="checkbox"/> Eyes
Notes: _____

Have Any of the Following Been Diagnosed?
<input type="checkbox"/> Delayed Speech & Language _____
<input type="checkbox"/> Seizures _____
<input type="checkbox"/> Altered Motor Skills _____
<input type="checkbox"/> Intellectual Disability _____
<input type="checkbox"/> Developmental Disabilities _____
<input type="checkbox"/> FASD/ND-PAE _____
<input type="checkbox"/> ASD _____
<input type="checkbox"/> Learning Disabilities _____
<input type="checkbox"/> ADD/ADHD _____
<input type="checkbox"/> Other: _____
Notes: _____

Medical Concerns
Nutrition Concerns Comments: _____

Behavioral Health
<input type="checkbox"/> Bipolar <input type="checkbox"/> RAD <input type="checkbox"/> OCD <input type="checkbox"/> Anxiety <input type="checkbox"/> Depression <input type="checkbox"/> PTSD <input type="checkbox"/> Other: _____
Comments: _____

Audiology
<input type="checkbox"/> Concerns with Hearing/Hearing Aids
Comments: _____

IQ Test
<input type="checkbox"/> Stanford Binet <input type="checkbox"/> WISC-IV <input type="checkbox"/> WJCog-III
Date: _____

Neuropsychology Assessment
Date: _____

Education History
Birth to Three: _____
Early Childhood: _____
Special Education: _____
<input type="checkbox"/> LD <input type="checkbox"/> CD <input type="checkbox"/> EBD <input type="checkbox"/> OHI <input type="checkbox"/> S&L <input type="checkbox"/> ASD
<input type="checkbox"/> IEP Plan or <input type="checkbox"/> 504
Social Concerns: _____
Current School: _____
Grade: _____ Graduated? _____
Comments: _____



Diagnostic Options

- Few diagnosticians assess adults
 - Many that do have triage protocols that result in long wait times
- Don't let that stop you
 - Employ support strategies anyway



Supporting Families

Adapted from TheArc.org

- Meet the parent(s) where they're at
- Adapt training to accommodate learning style
- Services should be longer-term in nature
- Teach in real environment (i.e., home, community)
- Be inclusive of parents, and support increased interaction in community



Supporting Families, cont.

- Assess for support needs
 - Budgeting
 - Shopping/meal preparation
 - Emergency preparedness
 - Including mental health services as needed
 - Crisis intervention planning/services
- Service coordination
- Play groups for children and parents
- Adapted parenting skills training



Supporting Families, cont.

- Use concrete language and instructions
- Reduce stimulation in environment
 - Assist in organizing as needed
- Allow extra time to complete tasks/requests
- Start with (and end with) the Family



Discussion



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