Handle with Care!
Special Care for the Substance-Exposed Newborn

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Comprehensive Medical and Dental Program
Arizona Department of Child Safety
Arizona Task Force on Prevention of Prenatal Exposure to Alcohol and Other Drugs
The Numbers...
Substance Use

• Fetal exposure to drugs/alcohol 20%
  – At least 10% exposed throughout pregnancy
  – Pregnant woman in substance abuse treatment using alcohol (+/- drug use) declined from 46.6% to 34.8%

• Alcohol use – 10.0% of pregnant women
  – Binge drinking 4.4%
  – Heavy alcohol use 0.8%

• Illicit drugs – 4.5% within past month
  • Substance abuse admissions (drugs only) rose from 51.1% to 63.8%

• Problem is under-reported
Pregnancy and Fetal Development
Pregnancy Timeline

- Day 1 = Menstruation
- Day 14 = Conception
- Day 15-28 = Pre-implantation/Implantation
  - time when fertilized egg is leaving the ovary and moving down into the uterus to implant
  - No obvious physical changes or signs of pregnancy
  - No pregnancy symptoms
- Week 5-6 = Missed period and positive pregnancy test
- Week 8-12 = Pregnancy confirmation; doctor visit; prenatal care starts
Early Fetal Development

Critical Periods of Development

<table>
<thead>
<tr>
<th>Weeks gestation from LMP</th>
<th>Missed Period</th>
<th>Central Nervous System</th>
<th>Heart</th>
<th>Arms</th>
<th>Eyes</th>
<th>Legs</th>
<th>Teeth</th>
<th>Palate</th>
<th>External genitalia</th>
<th>Mean Entry into Prenatal Care</th>
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</table>
Substance Exposed Pregnancies: The Basics
Substances of Abuse

Elimination
Children who are exposed to alcohol, drugs, and/or other substances in utero can experience a variety of health problems:

- physical
- developmental
- cognitive
- behavioral
Alcohol during pregnancy is the leading preventable cause of birth defects, cognitive disabilities, and neurobehavioral disorders.

The *only* factor that causes FAS and FASD is alcohol consumption.
Research shows...

• There is no safe time for a pregnant woman to drink alcohol.
• There is no safe amount of alcohol for a pregnant woman to drink.
• Alcohol affects whatever organ or system that is currently growing, including:
  – Brain, heart, bones, kidneys, eyes, ears, face
• The brain grows and/or develops every day during pregnancy.
Development and Damage
Structural Damage

• Most structural damage occurs between weeks 2-10 (after LMP)
  – FAS facial features
• Cleft disorders (common with alcohol exposure); occur by week 12
Structural Damage

• Most CNS and heart malformations occur early in the first trimester of pregnancy. Damage may continue to occur through the 16th week.
• CNS and heart defects both occur more frequently with alcohol exposure.
Not just about Structural Damage

• Weeks 16-40, maturation and development continue.

• Organ function and ability to perform are affected.

Remember:
Alcohol & other drugs affect whatever organ and/or system currently growing; the brain grows and/or develops every day during pregnancy.
How many drinks would you give a newborn?
Other Drugs

We focus a lot on alcohol; what about other substances?
Opiates

- Morphine-like effects
  - Narcotic pain killers
  - Heroin
  - Methadone
- Persistent receptor disorder
- Cycle of drug craving and drug withdrawal
- Methadone Therapy
  - Provides safer drug substitute
  - Long half-life - eliminates craving and breaks cycle
  - Goal is rehabilitation
- Do not detox during pregnancy
# Observed Effects of Substance Abuse in the Newborn

<table>
<thead>
<tr>
<th></th>
<th>Nicotine</th>
<th>Alcohol</th>
<th>Marijuana</th>
<th>Cocaine</th>
<th>Opioids</th>
<th>PCP</th>
<th>Meth</th>
<th>Benzos</th>
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<tbody>
<tr>
<td><strong>Prematurity</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes/No</td>
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<td>Yes/No</td>
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<tr>
<td><strong>Low Birth Weight</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes/No</td>
<td>No</td>
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<tr>
<td><strong>Neuro - Behavioral SX</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td><strong>NAS</strong></td>
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<td>Yes</td>
<td>No</td>
<td>No?</td>
<td>Yes</td>
<td>Yes/No</td>
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<tr>
<td><strong>Congenital Malformations</strong></td>
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<td>No?</td>
<td>Yes/No</td>
<td>No</td>
<td>Yes</td>
<td>Yes?</td>
<td>Yes/No</td>
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<tr>
<td><strong>SIDS</strong></td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td><strong>Child Abuse or Neglect</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>

*Yes/ No* = both have been reported, *?* = controversial or unclear findings

*Adapted from Jansson LM, Velez ML. Peds in Review. Jan 2011*
Prenatal Substance Abuse: Short- and Long-term Effects on the Fetus

<table>
<thead>
<tr>
<th>TABLE 2 Summary of Effects of Prenatal Drug Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nicotine</strong></td>
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<tr>
<td>----------------------------------------------------</td>
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<tr>
<td><strong>Short-term effects/birth outcome</strong></td>
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<tr>
<td>Fetal growth</td>
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<tr>
<td>Anomalies</td>
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<tr>
<td>Withdrawal</td>
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<tr>
<td>Neurobehavior</td>
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<tr>
<td><strong>Long-term effects</strong></td>
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<tr>
<td>Growth</td>
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<tr>
<td>Behavior</td>
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<tr>
<td>Cognition</td>
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<tr>
<td>Language</td>
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<tr>
<td>Achievement</td>
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</tbody>
</table>

* Limited or no data available.
Addiction Involves Multiple Factors

Biology/Genes ↔ Environment

DRUG

Brain Mechanisms

Addiction
Effects of Alcohol & Other Drugs
- Study Limitations

**Limited research on outcomes**
- Controversial
- Unknown or uncontrolled doses
- Time
- Multiple drug exposures/co-occurring use

**Study limitations**
- Reporting bias by patient or researcher
- Unknown or uncontrolled doses
- Co-occurring use
- Long-term follow up expensive & difficult

**Confounding Factors**
- Poor nutrition
- Low SES
- No/poor prenatal care
- Abusive homes
- Family history of neurobehavioral problems

**Genetics vs. Environment**
- Much more confirmed research on alcohol effects, but there are still limitations
FAS/FASD
Definitions

• **Fetal Alcohol Syndrome (FAS)** - a congenital medical condition in which body deformation occurs, and/or facial development or mental ability is impaired because the mother drinks alcohol during pregnancy

• **Fetal Alcohol Spectrum Disorder (FASD)** - a *pattern* of birth defects, learning, and behavioral problems affecting individuals whose mothers consumed alcohol during pregnancy
  – Alcohol-related neurodevelopmental disorder (ARND)
  – Alcohol-related birth defects (ARBD)
Diagnosis of FAS

- Prenatal growth retardation
  - Lower-than-average height, weight, or both
- Identifiable physical features
  - Abnormal facial features (e.g., smooth ridge between nose and upper lip, wide-spaced eyes, posterior rotated ears)
- Central nervous system problems
  - Small head size (poor brain growth), problems with attention and hyperactivity, poor coordination
- Prenatal alcohol exposure; although confirmation is not required to make a diagnosis

Can be difficult to accurately diagnose. Often not diagnosed until age 3-5.

Diagnosis of FAS by age 6 is a strong protective factor for future success.
Facial Features of FAS

Develop between weeks 2-10 after LMP
Substance Abuse Risk Factors
Effects on Mom (& Baby)

• Lack of prenatal care
• Poor nutrition
• Increased medical complications
  – Increased risk of prematurity
• Infections
  – Hep B & C, Syphilis, HIV, STIs
• Exposure to violence, including IPV, injuries, premature death
• Increase in crime
  – Prostitution, theft, crime
Withdrawal Symptoms

• True withdrawal - opiates, sedative-hypnotics, & alcohol
• Withdrawal-like symptoms – antidepressant & antipsychotic medications & nicotine
• Onset varies
  • Type & amount of drugs
  • Time of last use
  • Character of labor & meds used during labor
  • Full term vs. premature infant
  • Nutritional status of mother
  • Presence of disease in infant
• Symptoms from birth to 72 hours of life
• Duration of symptoms 6 days - 3 months
Children Born with Neonatal Abstinence Syndrome (NAS)

- Increased risk of child maltreatment allegation
- Increased risk of substantiated allegation
- Substantiated allegation earlier in life
  - Median age 1 vs. 3 (p<.0001)
- Primary maltreatment was neglect (72%)
Intrauterine Drug Exposure

Increased Risk of:

• Impaired fetal growth
• Prematurity
• Neurologic deficits
• Behavioral changes
• Developmental Delays
• SIDS
• Child abuse

Neurobehavioral & Regulatory Impairment

- Seen with all substances of abuse
- Tremors
- Irritability
- Difficulty being consoled
- Hypertonicity
- Increased startle response (Moro reflex)
- Respiratory, feeding, & sleeping problems
Poor Pregnancy Outcomes

• The causes of most birth defects remain unknown.

• The causes of most cases of cognitive disabilities remain unknown.

• The causes of most behavior disorders are unknown.

(Many are felt to be a combination of genetic and environmental factors).
Special Care
Intervention

• For both the birth mother and the substance-exposed newborn, it is important to remember that it is more about support and intervention than a “cure.”

• Helpful guidelines:
  – Clear understanding
  – Realistic expectations
  – Creative problem solving
  – Patience
Comfort Measures

• Engage mom in treatment, if possible
• Allow infant to rest & don’t handle excessively
• Avoid overstimulation
• Establish sleep & wake routines
• Consistent & stable environment
  – Non smoking environment!
• Coordinate all care after infant wakes
• Swaddle in blanket
SIDS Prevention

• SENCs at increased risk of SIDS
• “Back to Sleep” AAP Program
  – Always have infant sleep on back, unless supervised tummy time
• Avoid overheating
  – Dress appropriately
• Avoid second hand smoke exposure
• Safe Sleep Practices
  – No Co-sleeping
  – Keep infant off of soft surfaces, pillows, blankets, mattresses
Treatment Measures
- Feeding

• Small, frequent feeds
• May need to try different nipples
• Offer pacifier for sucking reflex
• Discuss optimal caloric needs with PCP
• May need to wake infant every 3-4 hours, if not meeting caloric needs
• May need referral for feeding evaluation
Drugs of Abuse for Which Adverse Effects on the Infant During Breastfeeding Have Been Reported

- **Amphetamine**
  - Irritability, poor sleeping pattern

- **Cocaine**
  - Cocaine intoxication, irritability, vomiting, diarrhea, seizures, tremulousness

- **Heroin**
  - Tremors, restlessness, vomiting, poor feeding

- **Marijuana**

- **Phencyclidine (PCP)**


Treatment Measures
- Irritability & Sleeping Difficulties

• Don’t allow infant to become frantic
• Control and structure environmental stimuli
• Swaddle in flexed position
• Vertical rocking (vs. horizontal)
• Avoid eye contact
• Keep at arm’s length
• Give pacifier
Treatment Measures
- Muscle Tone & Posture

- Passive range of motion
- Infant massage
- Supportive positioning
- Tummy time (supervised)
- No walkers
- May need Occupational Therapy or Physical Therapy evaluation – ask PCP
2009 Calendar by Ann Geddes
Developmental Interventions

• Refer to AzEIP (0–3 years)
• Head Start (preschool)
• Interactive reading on a daily basis
• Speech therapy referral – ask PCP
  – If early vocalizations not present
  – Speech delay
• Hearing evaluation
  – All infants should be screened
  – Ask PCP about evaluation, if concerns
Why Men Matter...
Why Men Matter...

• Women sometimes drink with men.
• Women sometimes have sex with men.
• Women may have sex with men after drinking.
• 50% of pregnancies are unplanned.
Why Men Matter: Effects and Research

Some research suggests that alcohol may damage sperm, which could potentially have a negative affect on future offspring.

The effects of alcohol and/or substance abuse by either parent in the home are proven to increase the likelihood of emotional and behavioral problems in children.
Healthy Pregnancies = Healthier Babies

Arizona Task Force on Prevention of Prenatal Exposure to Alcohol and Other Drugs
Resources
FAS Arizona
Tucson, AZ
www.fasarizona.com/
FAS Arizona is a source for information, support, events, and resources in Arizona for Fetal Alcohol Syndrome (FAS) and Fetal Alcohol.

Emily Anderson Family Learning Center
1919 East Thomas Road
Phoenix, AZ 85016
Phone: (602) 546-1400 Fax: (602) 546-1409
www.phoenixchildrens.com/health-information/the-emily-center/
The Emily Center is a library that is free and open to the public. All the materials are about child health, injury and illness. They have books, videotapes and articles on FAS and other conditions.

Raising Special Kids
5025 East Washington Street
Suite #200
Phoenix, AZ 85034
Phone: (602) 242-4366 Fax: (602) 242-4306 Toll Free: (800) 237-3007
www.raisingspecialkids.org/
Raising Special Kids is a non-profit organization serving families of children with disabilities and special health care needs in central and northern Arizona. All programs and services are provided to families free of charge.

Native American Community Health Center
4520 North Central Avenue
Suite 620
Phoenix, AZ 85012
Phone: (602) 279-5262
www.nativehealthphoenix.org/
NATIVE HEALTH currently provides a wide range of programs including primary medical, dental, WIC, health promotion and prevention, wellness programs and behavioral health programs.

Native American Connections Inc, Guiding Star Lodge
3424 E Van Buren
Phoenix, AZ 85008
Phone: (602) 254-5805
www.nativeconnections.org/about/locations/guiding-star
Outpatient and Inpatient Services at Guiding Star and Indian Rehabilitation for Substance use disorders and co-occurring mental health disorders. Specialty services for pregnant, post partum, and parenting women.

The Arc of Arizona
PO Box 90714
Phoenix, AZ 85066
Phone: (602) 234-2721
www.arcarizona.org/
The Arc is the nation’s leading advocate for all people with intellectual and developmental disabilities and their families and the premier provider of the supports and services people want and need.
Spectrum Disorders (FASD),
FAS Community Resource Center
4710 E. 29th St.
Tucson, AZ 85710
Fax: 520-296-9172
Contact: Teresa Kellerman
www.come-over.to/FASCRC
The FAS Community Resource Center provides a wealth of information and resources for parents and professionals. There is information on support, training, and advocacy as well as many printed materials, videos, posters, brochures, and presentations.

Pilot Parents
2600 North Wyatt Drive
Tucson, AZ 85712
Phone: 520-324-3150
www.pilotparents.org/
Pilot Parents of Southern Arizona provides a wide variety of programs and services that support families of children with disabilities including peer to peer support, parent training, and a resource library.

University of Arizona Dept. of Pediatrics, Section on Genetics
1501 N Campbell Street
PO Box 245073
Tucson, AZ 85724
Phone: (520) 626-5175
Contact: Christopher Cunniff, M.D.
www.peds.arizona.edu/sections/genetics.asp
The members of the Genetics Section see children with birth defects, with unexplained mental retardation or failure to thrive—widely diagnosed conditions that sometimes are genetic, and with known genetic disorders (about 5,000 different ones). They are expert about potential teratogen (chemical or medication) exposures to the fetus and the causes of mutations.

Children’s Health Center of St. Joseph’s Hospital
350 West Thomas Rd
Phoenix, AZ 85013
Phone: (602) 406-3000 Fax: (602) 406-6135
www.stjosephs-phx.org/index.htm

March of Dimes
3550 North Central Avenue, Suite 610
Phoenix, AZ 85012
Phone: (602) 266-9933 Fax: (602) 266-9793
www.marchofdimes.com/arizona/arizona.asp
March of Dimes is dedicated to improving the health of babies by preventing birth defects, premature birth and infant mortality. They carry out their mission through research, services, education and advocacy
Parker Indian Health Service Hospital  
12033 Agency Road  
Parker, AZ 85344  
Phone: (520) 669-2137  
U. S. Public Health Service Indian Hospital is a general medical and surgical hospital in Parker, AZ, with 20 beds.

FASDNA Support Group  
Coconino County Health Department  
2625 N King Street  
Flagstaff, AZ 86001  
For more information contact:  
Jean Richmond-Bowman (928)214-3747  
Cindy Beckett (928)773-2307

Resource Center  
Flagstaff Medical Center  
2nd Floor - PICU/Pediatric Conference Room  
(928)214-3747

Arizona Department of Health, Office of Women’s and Children’s Health  
150 North 18th Ave.  
Suite 320  
Phoenix, AZ 85008  
Phone: (602) 364-1400 Fax: (602) 364-1495 Toll Free: (602) 542-1200  
www.azdhs.gov/phs/owch/  
The Office of Women’s and Children’s Health (OWCH) supports efforts to improve the health of Arizona women and children. Activities focus on assessment of health status and identification of health issues, development of partnerships and planning to address health issues, and provision of “safety net” services. High risk perinatal program for pregnant women. Has developed guides for identifying substance exposed newborns.
References


References


• Teresa Kellerman, Presentation Fetal Alcohol Spectrum Disorders Screening and Intervention Strategies (2013).


