


*The Basics of FASD
Awareness and
Prevention*

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FASD



1 in 13
pregnant women
reports alcohol use*

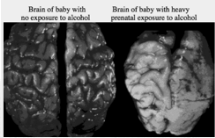
*Source: A 2014 survey found that 13% of pregnant women reported drinking alcohol during pregnancy. (National Institute on Alcohol Abuse and Alcoholism, 2014)

- Fetal Alcohol Spectrum Disorders is not a diagnostic category, but rather an umbrella term describing the *effects* that can occur in a person whose mother drank alcohol during pregnancy.
- These effects may include physical, mental, behavioral and/or learning disabilities but a RANGE of manifestations.

Prevalence FASD


- FAS in this community likely ranges from 6 to 9 per 1000 children (midpoint, 7.5)
- PFAS from 11 to 17 per 1000 children (midpoint, 14)
- Total rate of FASD is estimated at 24 to 48 per 1000 children. or 2.4% to 4.8% (midpoint, 3.6%) (1 in 50 to 1 in 20).
- Cost of Diagnostic services for FASD in Canada \$5.0 to \$7.3 million per year.

Popova S, Lange S, Burd L, Chudley AE, Jarren SK, Rehm J (2013) Cost of Fetal Alcohol Spectrum Disorder Diagnosis in Canada. May, et. al. (2014) Prevalence and Characteristics of Fetal Alcohol Spectrum Disorders, Pediatrics



- Alcohol Effects first recognized in 1968
- Fetal Alcohol Syndrome defined in 1973
- Fetal Alcohol Effects defined in 1978 but Changed to ARND - Alcohol Related **Neurodevelopmental Disorder**
- 100% preventable and 0% curable

4 Syndromes



- Fetal Alcohol Syndrome (FAS)
- Partial FAS (PFAS)
- Alcohol-Related Neurodevelopmental Disorders (ARND)
- Alcohol-Related Birth Defects (ARBD)

DSM-5:315.8, 2013 (F88) Neurodevelopmental disorder associated with prenatal alcohol exposure 3 areas of deficit: neurocognitive, self-regulation and Adaptive Functioning


FASD in the ICD-10-CM

- F88: Other Specified Delays in Development; Other Disorders of Psychological Development
- Q86.0: Fetal Alcohol Syndrome (dysmorphic)
- Q86. PO4.3: Alcohol Affecting Fetus or Newborn Via Placenta or Breast Milk
- P04.3: Newborn (suspected to be) affected by maternal use of alcohol
- Z13: Encounter for screening for other diseases and disorders

January 27, 2017
Dubovsky, 2017

Source: www.fasdpn.org

FAS

FAS 

- Facial dysmorphia: small palpebral fissures (10th %ile or below), smooth philtrum*, thin vermilion border*
- Growth deficiencies: weight/length-at or below the 10th percentile (any measurement from birth to present time)
- CNS Abnormality: Structural, Neurological or Functional
- (+)/(-) Maternal alcohol use in pregnancy (history is not always available)
 - CDC Guidelines for Referral and Diagnosis, 2004
 - (*Rank 4 or 5 on Univ of Washington Lip-Philtrum Guide)

CNS Abnormality

- **Structural**
 - Head circumference at or below 10th percentile
 - Clinically significant abnormalities on neuroimaging
- **Neurological**
 - Seizures
 - Focal deficits
- **Functional**
 - Cognitive/developmental deficits or discrepancies
 - Executive functioning deficits
 - Motor functioning delays
 - Problems with attention or hyperactivity
 - Problems with social skills
 - Others: Sensory problems, pragmatic language problems, memory deficits, etc.

FAS vs. FASD

- Full facial effects are **only** required for a diagnosis if one cannot substantiate that the mother drank during pregnancy.
- **FAS** has facial features, growth deficit and CNS abnormality
- Early diagnosis of FASD **before age 6** can reduce secondary characteristics
- Having full FAS and a lower IQ **increase** likelihood of early diagnosis & intervention.

Higher risk factors FASD

- Typically no facial features
- IQ above 70 - only 25% have an intellectual disability or IQ below 70
- Higher scores on maladaptive behavior
- Less chance for identification as it requires mother's self-report of drinking during pregnancy.



Is FASD Neurobehavioral?




- Alcohol causes Brain Damage by killing cells
- Alcohol affects structure and function of the brain
- Behaviors are symptoms NOT disorder
- Behavior is not willful or purposeful but due to damaged brain
- Therefore: INVISIBLE, PHYSICAL DISABILITY WITH BEHAVIORAL SYMPTOMS

Historical Perspective



- 1970's – Studies on FASD & animal models of FASD focusing on proving that alcohol was the culprit (a teratogen).
- 1981 – Surgeon General Report warning against drinking while pregnant
- 1980's and 1990's – research focused on describing the effects of alcohol
 - Regions vulnerable, patterns and timing


Patterns and Timing of alcohol exposure



- **1st Trimester:** Alcohol interferes with organization of brain cells, Facial Features- 3rd to 4th wk
- **2nd Trimester:** Alcohol causes clinical features of FAS
- **3rd Trimester:** Alcohol leads to problems encoding visual & auditory information


Current Research Focus

- 2000's to present: Relating specific brain regions to behavioral deficits and focus on treatment and prevention
- Alcohol inhibits critical L1 cell adhesion from the brain & spinal cord – brain damage
- Certain compounds can block alcohol's inhibition
 - Choline and Folate supplements
 - Similar drugs as those used to treat Alzheimer's



How much alcohol depends on

- Ability to metabolize alcohol (genetics, liver)
- Dosing of alcohol
- Pattern and timing of exposure
- Mother and Infants genetics
- General health and nutrition
- Level of stress and/or trauma
- Older Age and Number of births mother has had



What about Dad?

- Alcohol consumption affects genes in sperm which are responsible for normal fetal development.
- The father’s lifestyle and his support of the mother are always important prior to and during pregnancy because he can have a significant influence on the mother’s choices and her physical and behavioral health.
- Epigenetic Components long range changes to DNA

Hye Jeong Lee, Jae-Sung Ryu, Na Young Choi, Yo Seph Park, Yong Il Kim, Dong Wook Han, Kisung Ko, Chan Young Shin, Han Sung Hwang, Kyung-Sun Kang, Kinarm Ko. **Transgenerational effects of paternal alcohol exposure in mouse offspring.** *Animal Cells and Systems*, 2013; 17 (6): 429
DOI: 10.1080/19768354.2013.865675

Dad is important too..

- “Up to 75 percent of children with FASD have biological fathers who are alcoholics, suggesting that pre-conceptual paternal alcohol consumption negatively impacts their offspring.”

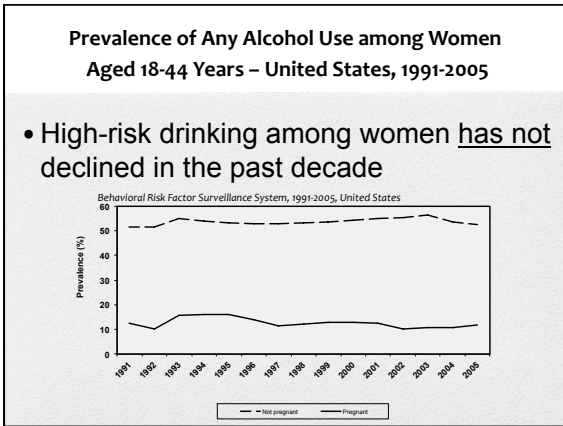
Day, Savani ,Krempley , Nguye , Kitlinska (2016). *Influence of paternal preconception exposures on their offspring: Through epigenetics to phenotype* American Journal of Stem Cells 5(1):11-18

Prevalence of Alcohol Use



14% of Americans have Alcohol Use Disorder (AUD), DSM-5

From: www.cdc.gov/ncbddd/fasd/data.html

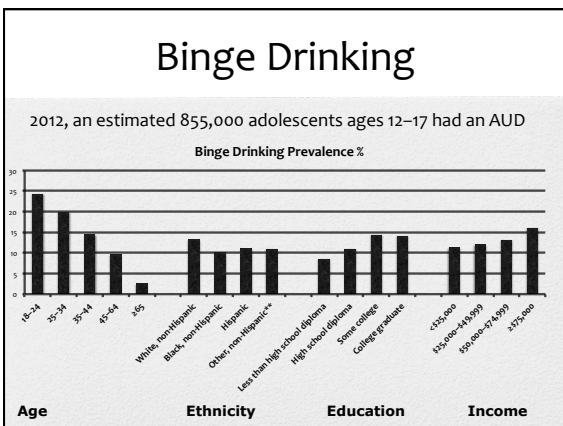


1 Episode of Binge Drinking...


Category	MEN	WOMEN
On any single DAY	No more than 4 drinks on any day	No more than 3 drinks on any day
Per WEEK	No more than 14 drinks per week	No more than 7 drinks per week

Binge: defined by the CDC as four or more drinks in about a two-hour period

2012 research- even small amounts of alcohol can lower baby IQ



Drinking at time of conception

- I consumed alcohol before I knew I was pregnant, is my baby ok? 
- **Theory:** Before the first missed period (0-18 days of conception) there is natural protection from an teratogenic agent because the zygote is self-contained, any alcohol in the bloodstream of the mother will not impact the embryo before the placenta is formed and delivering nutrients to the embryo.
- However, if you are trying to get pregnant **STOP** drinking

At risk for Alcohol Exposed Births

- 3.3 million US women, ages 15-44, were at risk of exposing their developing baby to alcohol if they were to become pregnant.
- 3 in 4 women who want to get pregnant do not stop drinking alcohol when they stop using birth control.
- Wealthier Americans are also less worried than everyone else about pregnant women drinking.

• CDC, Vital Signs, Feb, 2016

From *Choices* fact sheet

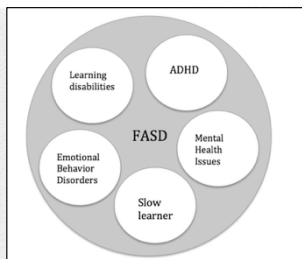
Understanding Risk for Alcohol-Exposed Pregnancies (AEPs)

- Among nonpregnant women aged 18-44 years:
- 52% reported drinking alcohol and
 - 15% reported binge drinking, (defined as four or more drinks on at least one occasion in the past 30 days).
- Almost 50% of all pregnancies in the US are unplanned. Alcohol consumption that produces high blood alcohol concentrations, such as binge drinking, has also been associated with unintended pregnancy.
- Among pregnant women aged 18-44 years:
- 8% reported drinking alcohol and
 - 1% reported binge drinking
- FASDs are among the leading, preventable causes of developmental disorders in the United States.

FASD- collect Diagnoses

- Reactive attachment disorder
- ADHD
- Oppositional defiant
- BiPolar Disorder NOS
- Cognitive Disorder NOS
- Depressive Disorder NOS
- Personality Disorder, Mixed with Borderline Antisocial and Schizotypal features
- Conduct Disorder, Disruptive Behavior

Consider FASD as the umbrella



Remember the behaviors are ONLY the symptoms of underlying physical disorder

Available tools for Prevention

- CHOICES- CDC funded program for non-pregnant women at risk
- Screening and Brief Intervention
- Parent-Child Assistance Program – a 3 year case management model
- ACOG Toolkit
- American Academy of Pediatrics toolkit
- Association of Reproductive Health Professionals

Screening for Caregivers

- Important for tailoring treatment and future prevention
- Are labeled as neglectful, uncaring or sabotaging
- Might end up repeating behaviors – multiple pregnancies
- Have children removed from their care
- Fail to follow through-- multiple directions
- Lose parental rights

Visit scfasd.weebly.com

Intervention Strategies

Evidence Based Interventions FASD

Math Interactive Learning Experience (MILE) Use of metacognitive techniques and manipulatives along with parent training to increase math performance of children ages 3-10. Services are available at the Marcus Institute and materials are available online at Do2Learn Contact Claire Coles at Marcus Autism Center claire.coles@marcus.org

Project Good Buddies Program: Social skills and friendship training for children ages 6-12

Parents and Children Together PACT PACT is a group program designed to improve behavior regulation skills, executive functioning, and parent effectiveness. Program serves low-income children and their families, each family receives 30 hours of direct service.

Language to Literacy Program A classroom-based program provides instruction to improve receptive and expressive language skills as well as early literacy skills. The program is a combination of language therapy, phonological awareness, and literacy training administered by a speech therapist.

Families Moving Forward Program: Program to help professionals and families understand how to deal with children affected by FASD. Contact the Moving Forward Program email: quiddiy@u.washington.edu

USFA Kids Fire Safety program (Flash based website)

ALERT Therapy-based program used to develop self-regulation skills, uses analogy of car-engine running high, slow, or just right

NeuroCognitive Habilitation

Zoo U www.zoogame.com/ Program to work on social emotional skills and impulse control. Development and research funded by IES (see 3C Institute: www.3cisd.com/zoou/demo)

Kidtools, KidSkills, and Picture Tools Free downloadable software developed for children to support their success in school, home, and community. Pictures tools uses your own photos to support management of students who need visual images.

Strategy Tools Free downloadable software to support the success of youth in high school and beyond. The software provides a set of electronic tools to get organized, learn and pass tests, complete projects, solve personal problems, and prepare for transition to adult life.

Many guides to download

Teaching Students with Fetal Alcohol Spectrum Disorders
Alberta Education Special Program Branch archive.education.alberta.ca/admin/supportingstudent/diverselearning/fasd/

Making a Difference: Working with Students who have Fetal Alcohol Spectrum Disorders
Yukon Department of Education www.fasalaska.com/EvensenFASDmanual.pdf

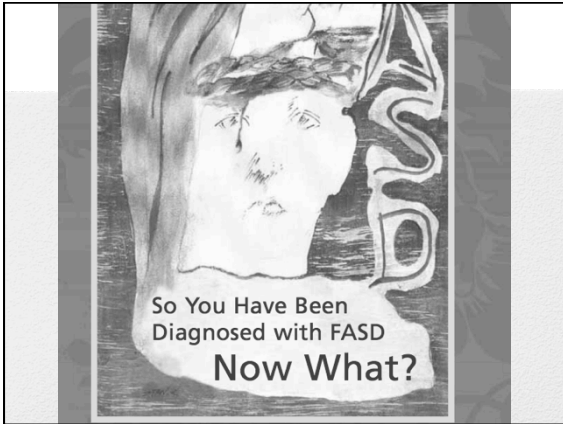
Fetal Alcohol Spectrum Disorder: A Guide to Awareness and Understanding
FASD Support Network of Saskatchewan Inc. Revised 2015
www.saskfasdnetwork.ca/resources/Links to all available guides: Tips Teachers, Support Workers, Caregivers and more

Teaching Students with Fetal Alcohol Spectrum Disorders
A Resource Guide for Florida Educators www.fldoe.org/core/fileparse.php/7690/urlt/0070099-fetalco.pdf

You have been Diagnosed with FASD
Handbook for Teens and Young Adults (pdf document) from FASDNetwork

TIP 58: Addressing Fetal Alcohol Spectrum Disorders SAMHSA Outlines methods for identification and suggestions for modifying treatment store.samhsa.gov/product/TIP-58-Addressing-Fetal-Alcohol-Spectrum-Disorders-FASD-/SMA13-4803

Welcoming Employees with FASD into your workplace
Connecting Canadians in Learning, Developed by the Regina Community Clinic (PDF Document)



Tools for Training students

The Science Inside Alcohol Project

With support from the National Institute of Alcohol Abuse and Alcoholism (NIAAA), Science Inside has developed and received a number of resources for educators to teach middle school students about the science of how alcohol affects their bodies. The goals of The Science Inside Alcohol Project are to help students make more well-informed choices, explain the science behind alcohol with a focus on chemistry and neuroscience, and create a kit that teaches students how the human body functions as a chemical system.

Filter Resources by Grade: **A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

TOOLS

The Science Inside Alcohol Project E-Book
1113 | Intermediate

This interactive e-book guides you through the effects of alcohol on the body and some of the physical and social consequences of underage drinking.

Delaying That First Drink: A Parents' Guide
1113 | Intermediate

Delaying That First Drink: A Parents' Guide was produced by the AAAS Science Inside Alcohol Project, which is funded by the National Institute on Alcohol Abuse & Alcoholism research on the impact of alcohol on the growing body and offers tips on how to talk to kids about drinking.

Better Safe Than Sorry: Preventing a Tragedy

To view publications in PDF format, you must download the Adobe Acrobat Reader. The browser you are using determines the methods necessary to download Acrobat files. See [Methods for Saving Acrobat Files / PDF Viewing Information](#).

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 (PLAYABLE POST-ASSESSMENT GAME AVAILABLE WITH CELEBRITY VOICE OVER)

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