Fetal Alcohol Spectrum Disorders: Everything has Changed

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What is PAE?

- Common
- Affects mother and children
- Increases mortality
- Index of addition severity
- Treatable
- Huge barrier to behavior change
How We Do It

Exposure Assessment

Exposure

When was your last drink?

Risk Stratification

<table>
<thead>
<tr>
<th>Before</th>
<th>Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexposed</td>
<td>Pre-awareness</td>
</tr>
<tr>
<td></td>
<td>Exposed</td>
</tr>
<tr>
<td></td>
<td>Exposed and High Risk</td>
</tr>
</tbody>
</table>

Dosimetry

Charting FHE During Pregnancy

On average, how many days per week did you drink during pregnancy? ____ (a)

On an average drinking day, during pregnancy, how many drinks did you have? ____ (b)

How many days per month did you have 4 or more drinks during pregnancy? ____ (c)

What is the most you had to drink on any one day during pregnancy? ____ (d)

What is a drink? Alcohol % ____ Drink Volume ____
Drinking and Smoking During Pregnancy: 
10 Beers and 10 Cigarettes a Day

By Larry Burd, PhD
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Cumulative Exposure

<table>
<thead>
<tr>
<th>Dosimetry</th>
<th>4 Beers</th>
<th>8 Beers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days Exposed</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td># Standard Drinks (14 Grams)</td>
<td>320</td>
<td>640</td>
</tr>
<tr>
<td>Binge Days</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Hours Exposed</td>
<td>680</td>
<td>1350</td>
</tr>
<tr>
<td>Total Grams Ethanol</td>
<td>4480</td>
<td>8950</td>
</tr>
<tr>
<td>Total Grams Ethanol entering Fetal Compartiment</td>
<td>520</td>
<td>1040</td>
</tr>
</tbody>
</table>
Oocytes
Fetal Exposure

- Maternal BAL
- Placental BAL
- Amniotic ETOH Levels
- BAL
- ?
Alcohol Elimination Rates (AER) in Ten Mother - Newborn Pairs

Grams/deciliter/hour

Maternal AER

Newborn AER

83.5%
FASD: What About The Men

Prenatal Alcohol Exposure
Increased risk of impotence 8%1
Lack of sexual desire increased 31% to 58%2
Double the risk of erectile dysfunction3
Decreased sperm (volume, motility, and abnormal sperm)4,5
Increase in risk of miscarriage 2–5 times6
Women drink with partner over 75% of the time7
Drinking is initiated by man over 40% of the time7
Increased risk of fetal death8
Decreased birth weight9
Late start of prenatal care10
Fewer prenatal visits10
Increased fetal deaths6

FASD Prevalence

- 1% of live births
- 20% recurrence risk
- More severe in younger sibs
- 5% ever diagnosed
- Increasing rates of neuropsychiatric disorders
WHAT IS FASD?

- Brain damage
- Impairments
- Long term
- Familial
- Generational
- Mortality risk marker
- Undiagnosed
- Diagnosis and treatment matter
- Course is modifiable
A Philosophy

*We can envision few things more certainly beyond one’s control than the drinking habits of a parent prior to one’s birth*” Dilbeck v. State 643 So 2d 1027 Fla 1994 (1994)
See Alcohol, Think Impairment
FASD FACTS

- It’s really common
- Most cases are undiagnosed (95 + %)
- It’s familial and generational
- Diagnosis makes a difference
- It’s preventable
- Treatment matters
FASD Forecast

The Future of FASD:
Increasing Severity of Neurobehavioral Impairments
Incarceration Risk For FASD

- In Canada youth 12–18 years of age with FASD have a 19 fold increase risk of incarceration.

Popova L., Am J Epidemiol , 2012
Behavior often persists over the lifespan

Same Behavior Different Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Irritable, impulsive, difficult, requires lots of attention</td>
</tr>
<tr>
<td>4</td>
<td>Picky organized, can’t finish, easily distracted, forgets</td>
</tr>
<tr>
<td>6</td>
<td>Loses and forgets, comprehension deficits, social deficits</td>
</tr>
<tr>
<td>8</td>
<td>Can’t finish, loses stuff, needs help every day, avoidant/aggressive</td>
</tr>
<tr>
<td>12</td>
<td>School problems, doesn’t get stuff home or back to school, social deficits, extra help needed</td>
</tr>
<tr>
<td>14</td>
<td>Late, social deficits, school problems, cognitive delays, behavior problems, does best at home, school problems often severe</td>
</tr>
<tr>
<td>20</td>
<td>Can’t get things finished, avoidant, anxious, easily overwhelmed, memory is poor, who doesn’t have help change, poor choices</td>
</tr>
<tr>
<td>24</td>
<td>Late or missing meetings, easily overwhelmed, avoidant, social choices are poor, role in agreement but doesn’t understand, can’t finish (treatment, parenting classes after 20+ years) who/what needs to change?</td>
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</table>
Early events have downstream developmental consequences

- Environment strongly influences outcome
Brothers Separated at Birth

Peta, is that you???
FASD Mothers

Alcohol = Impairment

Risk Factors Ahead
Exit 1 Abuse/Neglect
Exit 2 Foster Care
Exit 3 Impairments
Exit 4 Legal Problems
Exit 5 Substance Abuse
Exit 6 Dependent Living
FASD Forecast

The Future of FASD: Increasing Severity of Neurobehavioral Impairments
2) Basic Cognitive Skills in Adolescents and Adults with FASD

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Grade Level</th>
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<tbody>
<tr>
<td>Reading</td>
<td>5.0</td>
</tr>
<tr>
<td>Reading comprehension</td>
<td>4.5</td>
</tr>
<tr>
<td>Oral Comprehension</td>
<td>5.0</td>
</tr>
<tr>
<td>Percent Affected</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>80%</td>
</tr>
<tr>
<td>Attention (ADHD)</td>
<td>75%</td>
</tr>
<tr>
<td>Executive Function</td>
<td></td>
</tr>
<tr>
<td>Impairments</td>
<td>80%</td>
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<td>LEARNING/EDUCATION</td>
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<td>Learning/education</td>
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<td>Mental Health</td>
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<td>Family History</td>
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<td>Safety Concerns</td>
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**LEARNING/EDUCATION**
- Maternal Impairment Checklist
- Date
- Date of Birth

**MENTAL HEALTH**
- Maternal Impairment Checklist
- Date
- Date of Birth

**FAMILY HISTORY**
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- Date
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**SUBSTANCE ABUSE**
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**SAFETY CONCERNS**
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**RESOURCES**
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Manifestations of FASD

Behaviors
- Ignores
- Interrupts
- Blurs Out
- Plays Dumb
- Changes Story
- Avoidance
- Changes Facts
- Fills in Passes
- Agreeable
- Lies

Impairments
- ADHD
  - Inattentive
  - Impulsive
  - Fidgety
- Learning Disorders
  - Comprehension Deficits
    - *Listening*
    - *Reading*
    - *Listening and Reading*
    - *Memory Impairments*
- Anxiety
3) FASD: What we First See

Behavior + Impairment

A Better View

Behavior + Impairment

Inconsistent Performance

Typical Day
Intention Editor

Self-Directed

Context-Directed
Adolescents

- Think:
  - Impairment
  - Substance Abuse
    - Monitor for this
    - Track Peers
    - Treat First Time and Every Time – It’s a grave threat
    - Modify Treatment
  - Where will they live and work
  - Environment is key
  - Do Not Lose Hope
What to do?

- Think FASD (Family History)
- Go slow (Longer Treatment Episodes)
- What do they recall? (Memory)
- Pictures (It’s Concrete)
- Wishing and anger won’t help
- Reading and Comprehension (Listening)
- ANXIETY makes it worse (Group Work)
Why Such Poor Outcomes?

- 3 GENERATIONS OF EXPOSURE
- ANTICIPATION (Generational and Familial)
- BRAIN DAMAGE
- INCREASED COMORBIDITY
- LATE IDENTIFICATION
- IMPAIRMENT NOT BEHAVIOR
- FAILURE TO CONTINUE SERVICES
THE FUTURE
Powered Alcohol Products

- Powered or crystalline form
- 50% by weight, 10% by volume