FASD: Why Can’t We See It?

Larry Burd, PhD
Director, North Dakota Fetal Alcohol Syndrome Center
larry.burd@med.und.edu    701–777–3683

Heavy uses who drink all 40 weeks of pregnancy = 4,740.

How many are identified?
Detection of Prenatal Alcohol Expense

Prenatal reporting – Use of FAEE identifies 5 women who drank during the last 20 weeks of pregnancy for every 1 who reported drinking

Gareri, J., et al., Thera Drug Monit, 2008, 239–245
First Visit: \( r = 0.513 \)
Second Visit: \( r = 0.434 \)
Third Visit: \( r = 0.069 \)
Average: \( r = 0.266 \)
Estimated Number of Infants* Affected by Prenatal Exposure, by Type of Substance and Infant Disorder

*Approximately 4 million (3,952,841) live births in 2012

Includes nine categories of illicit drugs, including heroin and the nonmedical use of prescription medications.
Fetal Alcohol Spectrum Disorders

- FASD is a complex disorder with expression over the lifespan. The FASD phenotype is comprised of increased mortality beginning during pregnancy, increased risk for neuropsychiatric disorders and susceptibility to chronic illness. The complexity of the phenotype is increased by delayed diagnosis and accumulating effects from multiple adverse life experiences. The lack of long term anticipatory planning with an emphasis on risk reduction increases the complexity of care across the lifespan.
FASD Prevalence

- 1% of live births
- 20% recurrence risk
- More severe in younger sibs
- 5% ever diagnosed
- Increasing rates of neuropsychiatric disorders
FASD In New York

- Every Year: 2,370
- Birth – 18: 42,660
- Birth – 50 years: 118,500
FASD in New York

- New Cases Per Month: 198
- FASD Population birth – 18: 42,660
- Diagnosed: 2,100
- Undiagnosed: 40,560

Where are they at?

- Foster Care ***
- Birth Defects Clinics
- Mental Health**
- Special Education**
- Juvenile Corrections
- Residential Care**
New York Diagnostic Capacity

- FASD Annual Birth Cohort: 2,370
- Per work week (50 weeks): 47
- Total FASD Pop (0–18): 42,660
- Per work week: ???
## Cost of FASD in New York

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost/Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Daily Cost</td>
<td>$691,845</td>
</tr>
<tr>
<td>Annual Cost of Care</td>
<td>$324,192,300</td>
</tr>
<tr>
<td>Foster Care</td>
<td>34,127 years</td>
</tr>
<tr>
<td>Special Education</td>
<td>5,925 years</td>
</tr>
<tr>
<td>Juvenile Corrections</td>
<td>1,896 years</td>
</tr>
<tr>
<td>Developmental Disabilities</td>
<td>31,995 years</td>
</tr>
</tbody>
</table>
Behind the Face of FASD: We See

- ADHD
- Depression
- Cognitive Impairment
- Intellectual Disability
- Learning Disabilities
- Substance Abuse
- Judgment Deficits
The FASD Family

**The Dads**
- Age: 30.8
- Education: 10.9
- Unmarried: 63%
- Alcoholic: 12+ years
- Heavy Drinker: +
- Treatment: < 3
- Low SES: +

**Previous Terminations** ↑
**Number of Prenatal Visits** ↓
**Number of Prenatal Complications** ↑
**Birth Weight** ↓

**The Moms**
- Age: 27.4
- Education: 10.6
- Unmarried: 63%
- Smoker: 82%
- Alcoholic: 10+ years
- Treatment: > 3 (45%)
- Low SES: +
- Poor Diet: +
- Parity: 3
- Prenatal Visits: < 5 (56%)
- 1st Prenatal: > 1st tri (56%)
- Mortality: 4.9%

**Mortality**
- FASD Mothers: 4.9%
- Controls: 0.11%
- OR: 44.82
- 87% Died age 50 < (41.5%)
- Cancer
- Alcohol Related Accidents
- 31.3 YPLL per case

**The Children**
- Age Diagnosis: 7.1 Years
- Older Sibs: 2
- Younger: 2
- Mean Birth Weight: -701 grams
- Birth Defects: 50%
- Cerebral Palsy: 6%
- Intellectual Disability: 40%
- ADHD: 75%
- Out of Home: 85%
- Head Injury: 15%
- If FAS Diagnosis: 1 dead sibling (9%)
- 2 dead siblings (2%)
- 3 dead siblings (5%)

**Mortality Rate**
- FASD: 5.4%
- FAS Sibling: 11.4%
- Sibling Controls: 2.0%
- RR: 530%
- Infection OR: 13.7
- SIDS OR: 10.2

**Number of Prenatal Complications** ↑
**Number of Prenatal Visits** ↓
**Late Start Prenatal Care** ↑
**Birth Weight** ↓
**Number of Malformations** ↑
<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>FASD Mothers</th>
<th>Sample Size</th>
<th>Mortality Proportion (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astley et al.</td>
<td>2010</td>
<td>9</td>
<td>154</td>
<td>5.84 (2.12, 9.56)</td>
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<td>27</td>
<td>257</td>
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</tr>
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<td>65</td>
<td>23.08 (12.74, 33.42)</td>
</tr>
<tr>
<td>Streissguth et al.</td>
<td>1985</td>
<td>3</td>
<td>11</td>
<td>27.27 (-0.74, 55.28)</td>
</tr>
<tr>
<td>Mena et al.</td>
<td>1986</td>
<td>9</td>
<td>30</td>
<td>30.00 (13.25, 46.75)</td>
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</tbody>
</table>

**Summary**

No Controls

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<tr>
<th>Study</th>
<th>Year</th>
<th>FASD Mothers</th>
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</table>

**Summary**

With Controls

<table>
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<tr>
<th>Study</th>
<th>Year</th>
<th>FASD Mothers</th>
<th>Sample Size</th>
<th>Mortality Proportion (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viljoen et al.</td>
<td>2005</td>
<td>1</td>
<td>64</td>
<td>1.56 (-1.51, 4.63)</td>
</tr>
<tr>
<td>Li et al.</td>
<td>2012</td>
<td>15</td>
<td>304</td>
<td>4.93 (2.50, 7.37)</td>
</tr>
<tr>
<td>Kvine et al.</td>
<td>2003</td>
<td>4</td>
<td>78</td>
<td>5.13 (0.19, 10.06)</td>
</tr>
<tr>
<td>May et al.</td>
<td>2007</td>
<td>6</td>
<td>73</td>
<td>8.22 (1.87, 14.57)</td>
</tr>
<tr>
<td>May et al.</td>
<td>2000</td>
<td>6</td>
<td>48</td>
<td>12.50 (3.02, 21.98)</td>
</tr>
</tbody>
</table>

**Summary**

**Overall**

RR = 11.23
### THE ARND BEHAVIORAL CHECKLIST

**NAME/ID:**

**DOB:** / / 

**AGE:**

**SEX (circle one):** F  M

**RACE (circle one):** Caucasian  Native American  African American  Other

**DATE OF EXAM:** / / 

In order to complete this checklist:

1. Behaviors must be impaired for the age of the person being assessed.
2. Interviewee needs to have known the person being assessed for at least one month.

CHECK ALL THAT APPLY FOR THE APPROPRIATE AGE RANGE:

<table>
<thead>
<tr>
<th>BEHAVIOR</th>
<th>3-6 yrs.</th>
<th>7 yrs. +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor attention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impulsive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disorganized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seems unaware of consequences of actions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No fear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would leave with a stranger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor social skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Few friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will talk or interact with anyone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easily manipulated and set up by others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socially inept (inappropriate speech or touching)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty staying on topic during conversation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always talking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocktail speech - little content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too loud</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can’t remember from one day to the next</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below average IQ (&lt;85)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor school performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspended or expelled from school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor sleeper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can’t follow routine - needs reminders to get dressed, brush teeth, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temper tantrums</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extreme mood swings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requires constant supervision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Been in trouble with the law</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inpatient treatment for mental health or substance abuse, or in jail for a crime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inappropriate sexual behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor motor skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has or needs glasses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had foster care or was adopted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication for behavior - ever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother used alcohol during any pregnancy (OPTIONAL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother used alcohol in last five months of this pregnancy (OPTIONAL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother has been in treatment for alcohol use (OPTIONAL)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For additional forms or information on ARND, contact:

Larry Bard, Ph.D.
501 N. Columbia Road, Stop 9037
Grand Forks, ND 58202-9037
701-777-3683
www.online-clinic.com

TOTAL CHECKED: 16  20

(Continue assessment if score is greater than or equal to above)
ND–PAE Criteria

- Prenatal Alcohol Exposure (more than minimal)
- Neurocognitive Impairment (one)
  - Impairment in Global Intellectual Functioning
  - Impairment in Executive Functioning
  - Impairment in Learning
  - Impairment in Memory
  - Impairment in Visual–Spatial Reasoning
- Self–Regulation Impairment (one)
  - Impairment in Mood or Behavioral Regulation
  - Impaired Attention
  - Impairment in Impulse Control
- Adaptive Functioning Impairment (two)
  - Impairment in Communication
  - Impairment in Social Interactions and Communication
  - Impairment in Daily Living Skills
  - Impairment in Motor Skills
- Childhood Onset
ARND +

- Manage as affected
- Think about impairments
  - Short, brief, notes
  - Who will help (name, number, task)
- Does (YOUR) treatment work?
- Brain damage = impairments
  - Accommodate
- Prevent future problems
NO FASD

- Knows and recalls rules
  - Cautious
  - Thoughtful
- Thinks about consequence before acting
  - Reflective
  - Reliable
- Relies on experience
  - Does well living with rules

FASD

- IMPAIRED
  - Societal rules used inconsistently
- IMPAIRED
  - Poor judgement about
    - Peers
    - Consequences
    - Actions
- “OK!”
  - Impulsive
  - Easily led
  - Acts first, thinks later
FASD Forecast

The Future of FASD: Increasing Severity of Neurobehavioral Impairments

Severity

Age in Years

Birth

20

24
Adverse Childhood Experiences (ACEs) are Common in FASD

Prevalence of twelve ACE items among children with FASD compared to non-FASD controls. 

In FASD: ACEs are born before birth.

<table>
<thead>
<tr>
<th>ACE</th>
<th>FASD %</th>
<th>Non-FASD %</th>
<th>RR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents Divorced/Separated</td>
<td>72.45</td>
<td>45.71</td>
<td>1.86</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Drinking/Drugs in Home</td>
<td>84.69</td>
<td>22.86</td>
<td>4.96</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>In Foster Care</td>
<td>90.82</td>
<td>16.19</td>
<td>9.05</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Neglect</td>
<td>86.73</td>
<td>14.29</td>
<td>6.73</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Unloving Family</td>
<td>68.37</td>
<td>11.43</td>
<td>3.39</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Depression</td>
<td>32.65</td>
<td>35.24</td>
<td>0.94</td>
<td>.810</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>50.00</td>
<td>9.52</td>
<td>2.44</td>
<td>&lt;.001</td>
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<tr>
<td>Verbal Abuse</td>
<td>46.94</td>
<td>7.62</td>
<td>2.44</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>In Prison</td>
<td>35.71</td>
<td>7.62</td>
<td>2.07</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Mother Abused</td>
<td>32.65</td>
<td>8.57</td>
<td>1.92</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>23.47</td>
<td>5.71</td>
<td>1.84</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>In Residential Care</td>
<td>19.39</td>
<td>2.86</td>
<td>1.98</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>None or One</td>
<td>6.12</td>
<td>58.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two to six</td>
<td>39.80</td>
<td>35.24</td>
<td>5.73</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Seven to Twelve</td>
<td>54.08</td>
<td>6.67</td>
<td>9.86</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Adverse childhood experiences and prevalence of neurodevelopmental disorders are closely related.

<table>
<thead>
<tr>
<th>12-items</th>
<th>FASD</th>
<th>NON-FASD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ACE Score</td>
<td>Mean ACE Score</td>
<td></td>
</tr>
<tr>
<td>ADHD</td>
<td>6.46</td>
<td>1.96</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Oral Comprehension</td>
<td>6.64</td>
<td>1.74</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sleep Disorder</td>
<td>6.69</td>
<td>2.00</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Cognitive Impairment</td>
<td>6.00</td>
<td>2.13</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Vision Problems</td>
<td>6.77</td>
<td>1.66</td>
<td>&lt;.001</td>
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<tr>
<td>Anxiety Disorder</td>
<td>6.93</td>
<td>1.65</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Speech Difficulties</td>
<td>6.52</td>
<td>1.71</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Enuresis</td>
<td>6.27</td>
<td>1.61</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Language Problems</td>
<td>6.55</td>
<td>1.42</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Memory</td>
<td>7.06</td>
<td>2.00</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Depression</td>
<td>7.18</td>
<td>2.07</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>0 to 4 Dx</td>
<td>5.67</td>
<td>1.98</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>5 to 7 Dx</td>
<td>6.07</td>
<td>1.75</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>8 to 14 Dx</td>
<td>7.05</td>
<td>1.89</td>
<td>&lt;.001</td>
</tr>
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</table>
This is predicting ACE from ARND and Dx. It suggests Dx is the better predictor.

Prediction Plane

ACD = 2.005 + 0.093*ARND + 0.327*Dx

Dx Significant Predictor (p=.007); ARND not (p=.227)

As the Dx increases (front to back) the plane (ACE) goes up;
As the ARND increases (left to right) the plane (ACE) barely increases
Cut it down
Chop it up
Haul it away

It will let a lot more light into your life.
FASD has important neurocognitive features which effect treatment

What we First See

Behavior + Impairment

What we should see

Less Behavior + More Impairment

Most children have fewer behaviors and more impairments than we first suspect.

Inconsistant Performance

This results in day to day performance that is HIGHLY variable.
Children With FASD
Think about ACEs early and often

- Parents Divorced/Separated
- Drinking/Drugs in Home
- In Foster Care
- Neglect
- Sexual Abuse
- Unloving Family
- Parental Depression
- Physical Abuse
- Verbal Abuse
- Parent in Prison
- Mother Abused
- In Residential Care

Adversity accumulates over time. This has profound consequences over the lifespan – prevention reduces the risk

ACEs and neurodevelopmental disorders are linked
More ACEs lead to more diagnosis

- Delayed diagnosis limits access to diagnosis informed treatment
- Plan ahead to prevent future problems

In Canada youth 12 – 18 years of age with FASD have a 19 fold increase risk of incarceration.*
Parents With Substance Disorders Are Not Stress Tolerant
YOU don’t have to get better to do better!

Accommodations
2) **Basic Cognitive Skills in Adolescents and Adults with FASD**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Grade Level</th>
</tr>
</thead>
<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>
</tr>
</tbody>
</table>
TAKING YOUR MEDICINE

AM

RED
BLUE

PM

RED
BLUE
GREEN
BEDTIME SCHEDULE

PAJAMAS

BRUSH TEETH

GO POTTY

STORY TIME

LIGHTS OUT
<table>
<thead>
<tr>
<th>Exit 1</th>
<th>Abuse/Neglect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit 2</td>
<td>Foster Care</td>
</tr>
<tr>
<td>Exit 3</td>
<td>Impairments</td>
</tr>
<tr>
<td>Exit 4</td>
<td>Legal Problems</td>
</tr>
<tr>
<td>Exit 5</td>
<td>Substance Abuse</td>
</tr>
<tr>
<td>Exit 6</td>
<td>Dependent Living</td>
</tr>
</tbody>
</table>
FASD Management

- Yearly follow-up
- Few live independently
- Remember the Familial and Generational Effects of FASD
- Services MATTER
- Rely on positive interventions
  - Reduces risk of escalation
  - Less likely to burn out staff or parents
2,380 new cases each year
45 per week
One new case every 13 minutes
42,840 people with FASD birth-18
2142 are diagnosed
40,698 undiagnosed
Lifetime cost of care-$2.4 million per case
Recurrence risk is 20%
Mortality rate increased 540%
Mother’s mortality increased 44 fold

FASD leading identifiable cause of intellectual disability; 19 times more common in FASD
ADHD 7 times more common in FASD
Learning disabilities 3-5 times more common in FASD
Incarceration in juvenile corrections 19 times more common in FASD
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)
What About Foster Care?
Substance use in parents is the most frequent reason children go into foster care

Impact on Foster Care
- Prenatal Alcohol Exposed @ 70%
- Alcohol factor in removal @ 50%
- Mortality is increased (mother and children)
- Parents with FASD (42-60%)
- Treatment failure due to FASD @ 50%

Children With FASD Can Be Difficult to Parent Before, During, and After Foster Care
High rates of
- Sleep disorders
- Eating problems
- Toilet training difficulties
- Temper Tantrums
- Developmental disorders-needing therapy
- Comprehension deficits
- School problems
- Difficulty with homework
- Increasing severity of phenotype
- Often requires medications

Caregivers require ongoing supports including respite care.
Adapting Substance Abuse Treatment for People with FASD

- **FASD**
  - High rates of ADHD
  - Learning disabilities reading listening and spelling
  - Anxiety disorders
  - Cognitive Impairments

- **ADAPTATIONS FOR FASD**
  - Reduce anxiety and stress
  - Reduce reading – increase use of pictures
  - Increase time in treatment
Diagram showing a staircase with three steps:

1. Start
2. 1-2 Weeks
3. 3-4 Weeks

The vertical axis represents Understanding.
The Responsibility Scale

Damage to Fetal Brain

Anatomically Abnormal Functional Deficits

Legal System
You must be responsible for your actions!
In Canada youth 12–18 years of age with FASD have a 19 fold increase risk of incarceration.

Popova L., Am J Epidemiol, 2012
GETTING UP

7:00 AM

GET UP

GO POTTY

GET DRESSED

BREAKFAST

GET READY FOR SCHOOL
Can we send it home?

- Picture schedules
  - Bedtime
  - Morning routine
- Pictorial behavior plans
- Parents schedule
- Medication schedules
- Behavior Management
  - Transferring our gains
  - Preventing relapse
  - Respite care
  - Avoiding change
TAKING YOUR MEDICINE

AM

RED  BLUE

PM

GREEN

RED  BLUE  GREEN
Academic Achievement for Children with History of NAS Compared to Controls and Other Age Matched Children

- Other NSW Children
- Matched Controls
- NAS

Mean (95% CI) Composite Test Scores vs. Grade Level
Natural History: Fetal Alcohol Syndrome (FAS)
Life expectancy 34 years (95% CI: 31 to 37 years)

External Causes [Adversity] 44%
- Mortality rate of people with FAS is 7.4 to 73.3 times higher (depending on age group).
- suicide (15%)
- accidents (14%)
- poisoning by alcohol/illegal drugs (7%)
- other external causes (7%)

Diseases of Organ Systems [FAS/PAE Effects] 43%
- nervous system (8%)
- respiratory systems (8%)
- digestive system (7%)
- congenital malformations (7%)
- mental and behavioral disorders (4%)
- circulatory system (4%)
- cancers (3%)
- endocrine (2%).

Data from Thanh & Jonsson, March 2016
(Alberta Data 2003–2012)

from Loock 2017
### Mixed Causes

- Mood/Anxiety Disorders
- Thought Disorders
- Substance Use Disorders
- PTSD/ADHD
- Other Mental Health
- Sleep
- Sensory
  - Myopia 47% (30%)
  - Amblyopia 22% (3%)
  - Hearing 15% (0.3%)

### Top 5 Diseases of Organ Systems

1. All Autoimmune [5–8%] 30–35%
   Type 1 Diabetes [0.39%] 2.5%
2. Respiratory
   - Chronic sinusitis [13%] 34%
   - Allergies [40%] 52%
   - Asthma [9%] 33%
3. Hypertension [8%] 15%
4. Congenital heart [0.3%] 7.4%
   - All Birth Defects [2–4%]
5. Skeletal All [no data] 27–44%
   - Scoliosis [3%] 17%

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p/c Myles, Emily & CJ: 7th Biennial UBC FASD Conference Vancouver 2016
from Loock 2017
Month by Month Alcohol Use among Pregnant Women
(12-44 years of age in U.S.)

Data for the United States based on the R-DAS online analysis system of the National Surveys on Drug Use and Health, 2002-2011.
Among Women using BOTH Alcohol and Nicotine in the pregnancy
- 20.4% used Marijuana
- 9.5% used Cocaine

Women NOT using Alcohol or Nicotine
- 0.2% used Marijuana
- 0.1% used Cocaine

Alcohol and Nicotine use is also a marker for other drug use.

STRONG LINK BETWEEN ALCOHOL/NICOTINE USE AND USE OF ILLICIT DRUGS
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>Pre-awareness</td>
<td>Post-awareness</td>
</tr>
<tr>
<td>Unexposed</td>
<td>Exposed</td>
</tr>
<tr>
<td></td>
<td>Exposed and High Risk</td>
</tr>
</tbody>
</table>

Dosimetry —

Charting PAE 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 ______
Exposure Assessment

- 2 Keys
  - Month before pregnancy
  - Last drink
Behind the Face of FASD: We See

- ADHD
- Depression
- Cognitive Impairment
- Intellectual Disability
- Learning Disabilities
- Substance Abuse
- Judgment Deficits
<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>FASD Mothers</th>
<th>Sample Size</th>
<th>Mortality Proportion (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Controls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Astley et al. 27</td>
<td>2010</td>
<td>9</td>
<td>154</td>
<td>5.84 (2.12, 9.56)</td>
</tr>
<tr>
<td>Astley et al. 26</td>
<td>2000</td>
<td>27</td>
<td>257</td>
<td>10.51 (6.75, 14.26)</td>
</tr>
<tr>
<td>Olivier et al. 26</td>
<td>2013</td>
<td>5</td>
<td>28</td>
<td>17.86 (3.35, 32.37)</td>
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<tr>
<td>Spoehr et al. 26</td>
<td>1993</td>
<td>11</td>
<td>60</td>
<td>18.33 (6.44, 28.23)</td>
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<tr>
<td>Urban et al. 26</td>
<td>2015</td>
<td>22</td>
<td>96</td>
<td>22.92 (14.46, 31.38)</td>
</tr>
<tr>
<td>May et al. 24</td>
<td>1963</td>
<td>15</td>
<td>65</td>
<td>23.08 (12.74, 33.42)</td>
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<tr>
<td>Streissguth et al. 26</td>
<td>1965</td>
<td>3</td>
<td>11</td>
<td>27.27 (-0.74, 55.28)</td>
</tr>
<tr>
<td>Mena et al. 29</td>
<td>1986</td>
<td>9</td>
<td>30</td>
<td>30.00 (13.25, 46.75)</td>
</tr>
<tr>
<td><strong>Summary</strong></td>
<td>101</td>
<td>701</td>
<td></td>
<td>17.04 (11.04, 23.04)</td>
</tr>
<tr>
<td><strong>With Controls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vlijoen et al. 22</td>
<td>2005</td>
<td>1</td>
<td>64</td>
<td>1.56 (-1.51, 4.63)</td>
</tr>
<tr>
<td>Li et al. 19</td>
<td>2012</td>
<td>15</td>
<td>304</td>
<td>4.93 (2.50, 7.37)</td>
</tr>
<tr>
<td>Kvigne et al. 26</td>
<td>2003</td>
<td>4</td>
<td>78</td>
<td>5.13 (0.19, 10.06)</td>
</tr>
<tr>
<td>May et al. 23</td>
<td>2007</td>
<td>6</td>
<td>73</td>
<td>8.22 (1.87, 14.57)</td>
</tr>
<tr>
<td>May et al. 24</td>
<td>2000</td>
<td>6</td>
<td>48</td>
<td>12.50 (3.02, 21.98)</td>
</tr>
<tr>
<td><strong>Summary</strong></td>
<td>32</td>
<td>567</td>
<td></td>
<td>4.97 (2.25, 7.70)</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>133</td>
<td>1268</td>
<td></td>
<td>11.25 (7.58, 14.92)</td>
</tr>
</tbody>
</table>

RR = 39
Neurobehavioral Expression of FASD

“No, I won’t.”

“Let’s wait; I want to talk this over…”

“OK!”
Fetal Alcohol Spectrum Disorders (FASD)

See PAE, Think Impairment

ARND: Risk Factors Ahead
- Exit 1: Abuse/Neglect
- Exit 2: Mental Disorders
- Exit 3: School Problems
- Exit 4: Legal Problems
- Exit 5: Substance Abuse
- Exit 6: Dependent Living
Avert your eyes, your majesty! It’s a flash card!
Drugs we are looking at for:

- Prenatal alcohol exposure
- Severe intoxication at delivery
- Abnormal brain pathways

\{ Metadoxine \}
\{ Naminda \}
Of all the substances of abuse (including cocaine, heroin, and marijuana), alcohol produces by far the most serious neurobehavioral effects in the fetus.

<table>
<thead>
<tr>
<th>EFFECT</th>
<th>ALCOHOL</th>
<th>MARIJUANA</th>
<th>COCAINE</th>
<th>HEROIN</th>
<th>TOBACCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Birth Weight</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Impaired Growth</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Facial Malformation</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Small Head Size</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Intellectual &amp; Developmental Delays</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Hyperactivity, Inattention</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Sleeping Problems</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Poor Feeding</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Excessive Crying</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Higher Risk for Sudden Infant Death Syndrome</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Organ Damage, Birth Defects</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Respiratory Problems</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>
Asking about PAE

• **DO NOT ASK** all the questions about smoking, alcohol and drug use at the same time.
• Scatter them out in the history.
• Last drink
• When did you find out you were pregnant
• Month before you were pregnant.
• What do you drink
• How often did you drink
• When did you cut down or stop
When Mother is missing, dead and no useful historian is available

- Maternal Risk Score
Estimating Exposure Risk

Maternal Risk Score

- Age over 25 years
- Unmarried, divorced, widow, living with partner
- On TANF, WIC, Social Security or income < $16,000 per year
- Did not graduate from high school
- Poor diet
- Smokes more than 1/2 pack per day
- Drinks, but less than 2 days/week & less than 2 drinks/drinking day
- Age first drunk less than 15 years
- In treatment over three times
- In treatment in last 12 months
- Previous child died
- Previous child with FASD, or developmental disability
- Children out of home (foster care or adopted)
- Heavy drinker (drinks 3 or more drinks/day for 3 or more days per week, or more than 5 drinks/day on 6 or more occasions)
- Uses inhalants, sniffs or illegal drugs

Score

<table>
<thead>
<tr>
<th>Score</th>
<th>Risk Category</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
<td>Standard prenatal care</td>
</tr>
<tr>
<td>5</td>
<td>Low</td>
<td>Standard prenatal care</td>
</tr>
<tr>
<td>20-40</td>
<td>Moderate</td>
<td>Standard prenatal care and FASD education</td>
</tr>
<tr>
<td>45-50</td>
<td>High</td>
<td>High risk pregnancy, alcohol-drug abuse treatment</td>
</tr>
<tr>
<td>55-105</td>
<td>Very High</td>
<td>High risk pregnancy, alcohol-drug abuse treatment</td>
</tr>
</tbody>
</table>
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

Detection of Prenatal Exposures and Risk of FASD

The 5 Trimesters

1. 3 Months Prior to Pregnancy: Early Detection prevents exposure. Smoking increases risks of FASD and increases severity.

2. 3 Months Post Delivery: Don’t Give Up the Quit: Alcohol Smoking Other Drug Use

Never Too Late to Quit or Cut Down

Detection at 10 weeks (Friday and Saturday Drinking 4 drinks per night and 4 cigarettes every day)

Exposure = 80 drinks & 240 cigarettes

Exposure Prevented = 320 drinks + 840 cigarettes
Relapse Rates for Substance Use Among Women who Quit During Pregnancy

3 Months Post Partum

- Smoking: 56%
- Alcohol: 41%
- Cocaine: 27%

Data for the United States based on the R-DAS online analysis system of the National Surveys on Drug Use and Health, 2002-2011.
FASD: Epidemiology of Anticipation

Familial

Older

Younger

Increasing Risk

Generational

Risk Increases
By 1st grade nearly 25% of mothers were dead

Alcohol: Dispersion and Elimination Kinetics
New Concepts on Fetal Exposure

1. Teratogenic Fraction
2. Effects: First in - to - last out
3. Cumulative Dosimetry
FASD: What does it look like?
# FASD Mortality Rates in North Dakota

<table>
<thead>
<tr>
<th>Population</th>
<th>Rate</th>
<th>Surveillance</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAS</td>
<td>5.4%</td>
<td>15 years</td>
</tr>
<tr>
<td>Maternal</td>
<td>4.5%</td>
<td>15 years</td>
</tr>
<tr>
<td>Sibling</td>
<td>11.4% / 2.0%</td>
<td>14 years</td>
</tr>
<tr>
<td></td>
<td>(530%)</td>
<td></td>
</tr>
<tr>
<td>Infectious</td>
<td>OR 13.7</td>
<td></td>
</tr>
<tr>
<td>SIDS</td>
<td>OR 10.2</td>
<td></td>
</tr>
</tbody>
</table>

Burd et al., 2004
## Diagnostic Criteria for FASD

<table>
<thead>
<tr>
<th></th>
<th>CNS</th>
<th>FACE</th>
<th>GROWTH</th>
<th>HISTORY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAS</strong></td>
<td>YES (3+ Domain Deficits)</td>
<td>YES (3 of 3)</td>
<td>YES (≤ 10%)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>PFAS</strong></td>
<td>YES (3+ Domains Deficits)</td>
<td>YES (2 of 3)</td>
<td>N/A</td>
<td>YES (Confirmed)</td>
</tr>
<tr>
<td><strong>ARND</strong></td>
<td>YES (2+ Domain Deficits)</td>
<td>N/A</td>
<td>N/A</td>
<td>YES (Confirmed)</td>
</tr>
</tbody>
</table>
Phenotype Detectability

Criteria are Age Dependent

Age in Years

Birth 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36
Think ARND (90 – 95%)
Not FAS (<5%) – diagnosis very complex
Almost everyone is undiagnosed
Management of FASD?
Typical FASD: Look for Impairment
Screen em ALL

- Foster Care
- Juvenile Justice
- Detention
- Mom was in Treatment
- Dead Sibling or Mother
- Sibling FASD
Neurobehavioral Expression of FASD

“No, I won’t.”

“Let’s wait; I want to talk this over...”

“OK!”
3) FASD: What we First See

Behavior + Impairment

A Better View

Behavior + Impairment

Inconsistent Performance

Typical Day
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>Poorly 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-helps</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, why doesn’t he/she change, poor choices</td>
</tr>
<tr>
<td>24</td>
<td>Late or missing meetings, easily overwhelmed, avoidant, social choices are poor, nods in agreement but doesn’t understand, can’t finish (treatment, parenting classes after 20+ years who/what needs to change?</td>
</tr>
</tbody>
</table>
The Responsibility Scale

Damage to Fetal Brain

Anatomically Abnormal Functional Deficits

Legal System
You must be responsible for your actions!
Behavior

- It is not the best days that define potential:
- It’s the worst days that determine what your life will be.
FASD Impact on Foster Care

- 0–3 population
- 0–5 population
- Total

- Prenatal Alcohol Exposed @ 70%
- Alcohol factor in removal @ 50%
- Parents with FASD (42–60%)
- Treatment failure due to FASD @ 50%
- Mortality and FASD
- Mothers Mortality @ 11%
Children With FASD Can Be Different to Parent

- High rates of
  - Sleep disorders
  - Eating problems
  - Toilet training difficulties
  - Temper Tantrums
  - Developmental disorders—needing therapy
  - School problems
  - Homework problems
  - Increasing severity of phenotype
We Should Not Increase Severity

- Level Systems
- Positive Reward Deficits
- Complex Requirements
- If you ever do it = You can always do it.
- Lack of Support and Advocacy
Behavior Management

POSITIVE BEHAVIORS
1. Increasing specific behaviors
2. Pick behavior which competes with negative behaviors

• Schedule rewards at first.
  Then go to random chances.
• Big problems require potent rewards.

NEGATIVE BEHAVIORS

Frequent verbal behaviors - tear off one for each target behavior

Better Listening
It’s in your bed.
It’s by the TV
It’s on the table

Normal voice.
Wait 30 seconds. No repeats.

• When Nathaniel has this card, he can earn rewards.
• Remove card for low level of inappropriate behavior
• 3 minutes only
• **NO Card. NO reward.**
  Offer frequent rewards.
• This is a signal that behavior is not appropriate. Can be done many times per day.

Reward Card

Calm Down Book
For

Have a plan.
• Practice
• Limit talking
• Reward all steps
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
In FASD:
YOU don’t have to get better to do better!

Accommodations
Acute Severe Alcohol Exposure During Pregnancy

Option 1. Hemodialysis
Option 2. Metaclooxine
  ▪ Increase alcohol metabolism

FASD in Florida

- Annual Births: 219,905
- Annual FASD Births: 2,199
- Recurrent Cases: 540
- 110 will recur in families with multiple affected children.
FASD in Florida

- New Cases Per Week: 42
- FASD Population birth – 18: 39,582
- Diagnosed: 1,000–1,500
- Undiagnosed: 38,000

Where are they at?

- Foster Care ***
- Birth Defects Clinics
- Mental Health**
- Special Education**
- Juvenile Corrections
- Residential Care**
90% of all female opioid users are of childbearing age.
4.5% of pregnant women use illicit drugs.
Between 6.5 and 11% of women with substance abuse disorders become pregnant every year.
General Strategies

- Plan long-term
- Teach the child/parent to ask for help
- Focus on strengths
- Use praise constantly
- Identify someone (or a team) to serve as the “external brain”
What Behavior to Start With

- Frequent
- Easy to Identify and Count
- Has a Negative and Positive Consequence
- Try to avoid infrequent behaviors to start with
Calm Down Book
For

Say:

“I want to leave!”

Do Not Talk!

Go to your spot.
Green Light problems in the last year

“No, I won’t.”

“Let’s wait; I want to talk this over...”

“OK!”

My plan:

1)

2)

3)
FASD and Comorbid Mental Disorders

ID/MR
Depression
Anxiety Disorder
Obsessive…

Weighted Average Prevalence

FASD Forecast
The Future of FASD: Increasing Severity of Neurobehavioral Impairments

3) FASD: What we First See

Behavior + Impairment
A Better View

Behavior + Impairment
Inconsistent Performance

Typical Day
FASD and Maternal Mortality

- By 1\textsuperscript{st} grade nearly 25% of mothers were dead

I am concerned about the affect of alcohol on your baby.

Drinking in pregnancy can cause lifelong health problems for your baby.

- Not growing well
- Learning disabilities in school
- Vision and hearing problems
- Being born too early and too small
- Heart defects

When do you drink? Why do you drink?

- With my partner.
- With my friends.
- When I am unhappy.
- Other reasons?

What are advantages for you to stop drinking?

- I will be healthier and happier.
- My baby will be healthy.
- I will have more money.
- Other reasons?

How can you avoid alcohol?

- Find a friend to help.
- Avoid situations with alcohol.
- Plan healthy activities with friends.
- Other examples?

I want to meet with you again. When is your next prenatal visit?

Remember to bring your support friend to your next visit.
### 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>Poorly 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-helps</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, why doesn't he/she change, poor choices</td>
</tr>
<tr>
<td>24</td>
<td>Late or missing meetings, easily overwhelmed, avoidant, social choices are poor, nods in agreement but doesn't understand, can't finish (treatment, parenting classes after 20+ years) who/what needs to change?</td>
</tr>
</tbody>
</table>

#### FASD: What we First See

3) Behavior + Impairment

A Better View

Behavior + Impairment

Inconsistant Performance

Typical Day

#### The Responsibility Scale

Damage to Fetal Brain

Anatomically Abnormal Functional Deficits

Legal System

You must be responsible for your actions!
. . . we can envision few things more certainly beyond one’s control than the drinking habits of a parent prior to one’s birth

Dillbeck v. State (Fla. 1994)
See PAE, Think Impairment

Neurobehavioral Expression of FASD

“No, I won’t.”

“Let’s wait; I want to talk this over…”

“OK!”

Behind the Face of FASD: We See

- ADHD
- Depression
- Cognitive Impairment
- Intellectual Disability
- Learning Disabilities
- Substance Abuse
- Judgment Deficits
Prevalence

N=72 (0.04%)
FAS

RR=15.5
AR%=93.5

N=17 (23.6%)
Depression

RR=2.9
AR%=65.4

N=44 (61.1%)
ADHD

RR=1.9
AR%=47.6

N=7,468 (3.9%)
Population

AR%=85.5

F: N=7,468 (3.9%)

F: N=72 (0.04%)
FAS

RR=6.9
AR%=85.5

F: N=17 (23.6%)
Depression

RR=1.1
AR%=10.6

F: N=12 (25.0%)
ODD

RR=1.4
AR%=28.6

P: N=6,488 (3.4%)

F: N=7 (41.2%)
Bipolar

P: N=2,389 (36.8%)

F: N=12 (70.6%)
ADHD

P: N=1,586 (24.4%)

F: N=6 (13.6%)
Bipolar

P: N=798 (12.3%)

F: N=12 (27.3%)
Depression

P: N=1,586 (21.2%)

F: N=11 (25.0%)
ODD

P: N=978 (13.1%)

F: N=6 (13.6%)
Bipolar

P: N=727 (9.7%)
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”


The expression of FASD takes a lifetime: The risk is lifelong

- Age and development dependent risk
- Mortality
- Substance abuse
- Exposure to violence
- Decreased capacity for independent living

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
Neurobehavioral Disorder Associated With Prenatal Alcohol Exposure

Name: ___________________________ Birth Date: ____________

Gender: _______ Current Age: _________

Proposed Criteria

___ A. More than minimal exposure to alcohol during gestation, including prior to pregnancy recognition. Confirmation of gestational exposure to alcohol may be obtained from maternal self-report of alcohol use in pregnancy, medical or other records, or clinical observation.

___ B. Impaired neurocognitive functioning as manifested by one or more of the following:
   ___ 1. Impairment in global intellectual performance (i.e., IQ of 70 or below, or a standard score of 70 or below on a comprehensive developmental assessment).
   ___ 2. Impairment in executive functioning (e.g., poor planning and organization; inflexibility; difficulty with behavioral inhibition).
   ___ 3. Impairment in learning (e.g., lower academic achievement than expected for intellectual level; specific learning disability).
   ___ 4. Memory impairment (e.g., problems remembering information learned recently; repeatedly making the same mistakes; difficulty remembering lengthy verbal instructions).
   ___ 5. Impairment in visual-spatial reasoning (e.g., disorganized or poorly planned drawings or constructions; problems differentiating left from right).

___ C. Impaired self-regulation as manifested by one or more of the following:
   ___ 1. Impairment in mood or behavioral regulation (e.g., mood lability; negative affect or irritability; frequent behavioral outbursts).
   ___ 2. Attention deficit (e.g., difficulty shifting attention; difficulty sustaining mental effort).
   ___ 3. Impairment in impulse control (e.g., difficulty waiting turn; difficulty complying with rules).

___ D. Impairment in adaptive functioning as manifested by two or more of the following, one of which must be (1) or (2):
   ___ 1. Communication deficit (e.g., delayed acquisition of language; difficulty understanding spoken language).
   ___ 2. Impairment in social communication and interaction (e.g., overly friendly with strangers; difficulty reading social cues; difficulty understanding social consequences).
   ___ 3. Impairment in daily living skills (e.g., delayed toileting, feeding, or bathing; difficulty managing daily schedule).
   ___ 4. Impairment in motor skills (e.g., poor fine motor development; delayed attainment of gross motor function; deficits in co-ordination and balance).

___ E. Onset of the disorder (symptoms in Criteria B, C, and D) occurs in childhood.

___ F. The disturbance causes clinically significant distress or impairment in social, academic, occupational, or other important areas of functioning.

___ G. The disorder is not better explained by the direct physiological effects associated with postnatal use of a substance (e.g., a medication, alcohol or other drugs), a general medical condition (e.g., traumatic brain injury, delirium, dementia), another known teratogen (e.g., fetal hydantoin syndrome), a genetic condition (e.g., Williams syndrome, Down syndrome, Cornelia de Lange syndrome), or environmental neglect.

Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, 2013
Talking about Alcohol

Instead, say: “I…”
“We…”
“Together…”
“We can…"

Sit down to talk

Where Are We At?

How does drinking help? (try for 2 or 3)

What problems does drinking cause? (try for 2 or 3)

Could you cut down?  Y  N  Maybe
Could you stop?  Y  N  Maybe

Reducing Risk

What would be most helpful for you? (try for 2 or 3)

Who can we get to help us?
- Close friend
- Relative
- AA sponsor

Can we make it through today?
- Y  N  Maybe

Followup

How can we stay in touch?

Let’s get together again on

Larry Burd, Ph.D.
North Dakota FAS Center
701.777.3083
larry.burd@med.UND.edu
www.online-clinic.com
When was your last drink? Date you knew you were pregnant Your pregnancy was confirmed by doctor visit
Date ____________________________ Date ____________________________ Date ____________________________

When do you usually drink?
Every day?
Weekends Th F S S
On a drinking day, how many drinks do you have? ________________
How much do you buy?
On a drinking day ________
On a weekend ________

Pregnancy Exposure
Exposed yes _____ no _____
Days exposed__________
% of pregnancy exposed ________
Binge days (4 or more) ________
Cumulative exposure ________ drinks

When did you have your last cigarette? ____________________________
What days do you smoke? ____________________________
Number of cigarettes you usually have? per day_____ or per week______
How many cigarettes do you buy per week? ________ or per month?______

Exposed yes _____ no _____
Days exposed n = _____ % of pregnancy ________
Cumulative exposure ________ cigarettes
Table 1. Cost Comparison of Prevention Funding for Zika ($350 million) and Fetal Alcohol Spectrum Disorder over a comparable time period of 418 days.

<table>
<thead>
<tr>
<th>Zika</th>
<th>Cost Per Case</th>
<th>FASD</th>
<th>Cost Per Case</th>
<th>Cost Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>222 cases acquired in US</td>
<td>$1.576 million</td>
<td>1% = 43,472</td>
<td>$345</td>
<td>4,568</td>
</tr>
<tr>
<td>4,861 cases diagnosed in travelers</td>
<td>$72,000</td>
<td>4% = 173,888</td>
<td>$86</td>
<td>837</td>
</tr>
</tbody>
</table>
Uppgivenhetssyndrom
(Resignation syndrome)
Typical FASD: Look for Impairment

Behind the Face of FASD: We See

- ADHD
- Depression
- Cognitive Impairment
- Intellectual Disability
- Learning Disabilities
- Substance Abuse
- Judgment Deficits

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 - Familial and Generational Effects

Mortality Risk
- Maternal Case
- Sibling

4 fold

Stillbirth 4 fold
SIDS 10 fold
Infectious Illness 10 fold

FAS - Red
PFAS - Yellow
ARND - Green
22 weeks/140 lb. female

<table>
<thead>
<tr>
<th>Drinks</th>
<th>Maternal BAC</th>
<th>Alcohol Accumulation in Fetal Compartment</th>
<th>Alcohol Elimination to 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>.37</td>
<td>7</td>
<td>25.6</td>
</tr>
<tr>
<td>10</td>
<td>.30</td>
<td>6</td>
<td>21.3</td>
</tr>
<tr>
<td>8</td>
<td>.22</td>
<td>5</td>
<td>17.1</td>
</tr>
<tr>
<td>5</td>
<td>.11</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>4</td>
<td>.08</td>
<td>2</td>
<td>8.5</td>
</tr>
<tr>
<td>2.5</td>
<td>.02</td>
<td>1</td>
<td>5.3</td>
</tr>
</tbody>
</table>
Anticipation in FASD:
Familial and Generational Effects

FAS = Red
PFAS = Yellow
ARND = Green
X = Death

SIDS
Two Hundred and Fifty-Eight Cases of Suffocation of Infants

By Charles Templeman, M.D.,
B.Sc. (Pub. Health), Surgeon of Police;
Surgeon to the Royal Infirmary, Dundee.

(Read before the Medico-Chirurgical Society of Edinburgh,
1st June 1892.)
If drinking over 2 years prior to pregnancy, mortality rate 62.7%

♦ 46% deaths occur on Saturday night and Sunday morning
Neurobehavioral Expression of FASD

“No, I won’t.”

“Let’s wait; I want to talk this over...”

“OK!”
A Note on the Influence of Maternal Inebriety on the Offspring

By W. C. Sullivan, M.D., and Stewart Scholar in Mental Disease, R.U.I., Deputy Medical Officer, H.M. Convict Prison, Parkhurst (July, 1899)
Mortality

♦ Women n = 100
  (plus 20 female relatives)
  600 Children

♦ 335 (55.8%) died
♦ 80 women had 3 or more dead infants
Cost Comparison of Prevention Funding for Zika and Fetal Alcohol Spectrum Disorder Over a Comparable Time Period.

<table>
<thead>
<tr>
<th>Zika</th>
<th>Cost Per Case</th>
<th>FASD</th>
<th>Cost Per Case</th>
<th>Cost Ratio</th>
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<td>$72,000</td>
<td>4% = 173,888</td>
<td>86</td>
<td>837</td>
</tr>
</tbody>
</table>
Teratogenic Fraction

Oocytes
Cumulative Exposure
Alcohol: Concentration and Duration of Exposure

< 30 weeks GA

> 30 weeks GA
Barrier function present

BAC

Hours

First in - to - Last Out
Exposure Enviromics
Time under exposure curve
Prevention of FASD
(Always Reduce Smoking)

- Recurrence Prevention
- Improve Substance Abuse Treatment for Pregnant Women
- Maintain, Cut Down, or Quit After Pregnancy
- Prenatal Screening
Recurrence Prevention

Mothers of a child with FASD
61,222 Women

3,862 (6.31%) Pregnant; 57,360 (93.69%) Not Pregnant

2,417 (3.95%) Tested for Alcohol/Drugs; 58,805 (96.05%) Not tested

<table>
<thead>
<tr>
<th></th>
<th>Tested</th>
<th>Not Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant</td>
<td>40 (1.04%)</td>
<td>3,822</td>
</tr>
<tr>
<td>Not Pregnant</td>
<td>2,377 (4.14%)</td>
<td>54,983</td>
</tr>
</tbody>
</table>

Chi-Square = 91.37, p<.001

RR = 0.25 (0.183 to 0.341)
Powered Alcohol Products

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

- Annual Births: 53,132
- Annual FASD Births: 531
- Recurrent Cases: 106
- 25–40 will recur in families with multiple affected children.
- Start Prevention With These Mothers or in These Families
640 new cases each year
12 per week
11,520 people with FASD birth-18
576 are diagnosed
11,944 undiagnosed

- Recurrence risk is 20%
- Mortality rate increased 540%
- Mother’s mortality risk increased 44 fold

FASD leading identifiable cause of intellectual disability;
19 times more common in FASD
ADHD 7 times more common in FASD
Learning disabilities 3-5 times more common in FASD
Incarceration in juvenile corrections 19 times more common in FASD
Fetal Alcohol Spectrum Disorders (FASD)

See PAE, Think Impairment

The Responsibility Scale

- Damage to Fetal Brain
- Anatomically Abnormal Functional Deficits
- Legal System: You must be responsible for your actions!
Cost

F: FAS
P: Population
C: Mean Cost/Year
V: Mean Visits/Year
D: Cost Difference

F: C=$2947.56  V=16.0
P: C=$174.24    V=4.3
D=$2773.32

F: C=$3262.64  V=13.6
ADHD
P: C=$312.18   V=5.3
D=$2950.46
D=$4457.64

F: C=$5071.84  V=18.2
Depression
P: C=$614.20   V=8.1
D=$5990.95
D=$4520.08
D=$5990.95
D=$3480.44
D=$3480.44

F: C=$4387.94 V=19.7
Depression
P: C=$907.5     V=9.6
D=$2773.32

F: C=$5071.84 V=22.1
ODD
P: C=$1234.2    V=10.7
D=$6719.86

F: C=$8087.64 V=24.1
Bipolar
P: C=$1367.79 V=12.9

F: C=$4387.94 V=19.7
ADHD
P: C=$907.5     V=9.6
D=$2773.32

F: C=$7081.40 V=18.3
Bipolar
P: C=$1090.45 V=10.3
D=$4520.08
D=$4520.08

F: C=$6262.48 V=21.8
ODD
P: C=$1742.4   V=12.7
Alcohol Elimination Rates (AER) in Ten Mother - Newborn Pairs

Grains/deciliter/hour

Maternal AER

Newborn AER

83.5%
% of Pregnant and Non-Pregnant Women with Psychiatric, Substance Abuse Disorders, or Other Dx Who were Tested for Alcohol or Drugs

- Pregnant (N=3,862)
- Not Pregnant (N=57,360)

<table>
<thead>
<tr>
<th>Category</th>
<th>Pregnant</th>
<th>Not Pregnant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatric</td>
<td>30.61%</td>
<td>81.01%</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>48.62%</td>
<td>37.50%</td>
</tr>
<tr>
<td>Other</td>
<td>0.58%</td>
<td>1.76%</td>
</tr>
</tbody>
</table>

Relative Risk (RR):
- Psychiatric: .630
- Substance Abuse: .463
- Other: .329
% of Pregnant and Non-Pregnant Women from 2010 to 2016 Who were Tested for Alcohol or Drugs

- Pregnant (N=3,862)
- Not Pregnant (N=57,360)

<table>
<thead>
<tr>
<th>Year</th>
<th>Pregnant</th>
<th>Not Pregnant</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>379; 2,523</td>
<td>589; 7,434</td>
<td>0.25%</td>
</tr>
<tr>
<td>2011</td>
<td>626; 9,818</td>
<td>1,53%</td>
<td>2.79%</td>
</tr>
<tr>
<td>2012</td>
<td>650; 10,106</td>
<td>1.46%</td>
<td>0.48%</td>
</tr>
<tr>
<td>2013</td>
<td>726; 11,360</td>
<td>2.10%</td>
<td>0.92%</td>
</tr>
<tr>
<td>2014</td>
<td>758; 11,628</td>
<td>2.53%</td>
<td>1.10%</td>
</tr>
<tr>
<td>2015</td>
<td>713; 12,022</td>
<td>1.41%</td>
<td>0.70%</td>
</tr>
<tr>
<td>2016</td>
<td>776; 12,518</td>
<td>6.08%</td>
<td>4.47%</td>
</tr>
</tbody>
</table>

RR = Relative Risk
MAKING THE CONNECTION BETWEEN SUBSTANCE USE DISORDERS AND FOSTER CARE
Neurobehavioral Expression of FASD

“No, I won’t.”

“Let’s wait; I want to talk this over...”

“OK!”
See PAE, Think Impairment

Neurobehavioral Expression of FASD

"No, I won't."

"Let's wait; I want to talk this over..."

"OK!"
Our Case – A Post Evaluation View

- Prenatal alcohol exposure
- Physical – Sexual Abuse – Severe
- Early Alcohol Dependency (age 6)
- Intellectual Deficiency (IQ 62)
- Reading Grade 4
- Read Comph 3.5
- Math Grade 4
- Oral Comp Grade 3
- Memory Impairments
- Depression
- Substance Use – Alcohol, Smoking and other
- PTSD
- ADHD
- Unilateral Visual Impairment
- Fetal Alcohol syndrome
- Traumatic Brain Injury ?
- No History Violence – Absent Alcohol Use
- Multiple Substance Use Treatment Failures ??
“Unless someone like you cares a whole awful lot, Nothing is going to get better. It’s not!”

- Dr. Suess
Intramembranous Pathway = 200-500 ml/day

Swallowing = 500-1000 ml/day

Fetal Breathing = 170 ml/day

Fetal Urine = 800-1200 ml/day

Recirculating Pathways of Ethanol and Amniotic Fluid

Alcohol
Elimination
Reuptake

Recirculation = Longer Exposure
718 new cases each year
14 per week
12,9240 people with FASD birth-18
646 are diagnosed
12,278 undiagnosed
Lifetime cost of care-$2.4 million per case
Recurrence risk is 20%
Mortality rate increased 540%
Mother’s mortality increased 44 fold

FASD leading identifiable cause of intellectual disability;
19 times more common in FASD
ADHD 7 times more common in FASD
Learning disabilities 3-5 times more common in FASD
Incarceration in juvenile corrections 19 times more common in FASD
Drinking in Last 30 Days for Pregnant Women
(12-44 years of age in U.S.)

Data for the United States based on the R-DAS online analysis system of the National Surveys on Drug Use and Health, 2002-2011.
Alcohol Use After the Baby is Born

<table>
<thead>
<tr>
<th>Months</th>
<th>3</th>
<th>5</th>
<th>8</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31.9</td>
<td>43.9</td>
<td>46.4</td>
<td>52.1</td>
</tr>
</tbody>
</table>
Child Death Rate Higher in Drinkers' Families

<table>
<thead>
<tr>
<th>Abstaining Parents</th>
<th>Moderate Drinking Parents</th>
<th>Immediate Drinking Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children Dead</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>Children Living</td>
<td>87%</td>
<td>77%</td>
</tr>
</tbody>
</table>

Abstaining parents had never drunk alcoholic liquor, or at least since marriage.
"Moderates" drank no more daily than corresponded to one glass of 6% beer.
"Immediate" drank daily more than the above-mentioned amount.

Excessive Death-Rate in Drinking Homes Cost 2,407 Children Their Lives

# Temper Tantrums

**10 in a Row Plan**

- Walk away
- No talking
- Wait 2-3 minutes

## Tantrums

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
</table>

## Rewards = Playing Nice

For each time out, find a positive behavior to reward

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
Table 1. Phenotypic Comparisons of the Diagnostic Criteria for Neurodevelopmental Disorders Associated with Prenatal Alcohol Exposure (ND-PAE) and Alcohol Related Neurodevelopmental Disorder (ARND).

<table>
<thead>
<tr>
<th>Neurodevelopmental Disorder Associated with Prenatal Alcohol Exposure (ND-PAE)</th>
<th>ARND</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>Negative</td>
<td>Sensitivity</td>
<td>Specificity</td>
<td>Accuracy</td>
</tr>
<tr>
<td>1. All 7 Major Criteria Checked</td>
<td>Positive</td>
<td>60</td>
<td>11</td>
<td>.833</td>
<td>.560</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>12</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Weighted 7 item + Score &gt;=35</td>
<td>Positive</td>
<td>67</td>
<td>12</td>
<td>.931</td>
<td>.520</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>5</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Weighted 16 item + Score &gt;=31</td>
<td>Positive</td>
<td>71</td>
<td>7</td>
<td>.986</td>
<td>.720</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>1</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Vasoconstriction from Smoking and Alcohol

Healthy

Arteries to Placenta

Vein to Baby

Smoking

Smoking and Alcohol
FASD In OK

- Foster Care 9,800
  - 25% = 2,450
  - 10% = 980

- Corrections 27,000 (130 per day)
  - 25% = 6,750
  - 10% = 2,700
# Birth to Three Screen

## FASD Screening Birth to 3 – Brief Screen

Name ___________________  DOB  ____________  Sex  M  F

ID ___________________  Age  ____________  Date  ____________

Height  ___________________  Weight  ___________________  Head Circumference  ___________________

Findings That Suggest Increased Risk of FASD  (circle all that apply)

<table>
<thead>
<tr>
<th>Score</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1. Child is adopted or in foster care</td>
</tr>
<tr>
<td>1</td>
<td>2. Child has attention deficit hyperactivity disorder (ADHD)</td>
</tr>
<tr>
<td>1</td>
<td>3. Child has head circumference ≤ 20th percentile now or at birth (small head)</td>
</tr>
<tr>
<td>1</td>
<td>4. Child is below 20th percentile for weight now.</td>
</tr>
<tr>
<td>1</td>
<td>5. Child has midface hypoplasia (flat midface)</td>
</tr>
<tr>
<td>1</td>
<td>6. Red raised birthmark now or in the past</td>
</tr>
<tr>
<td>1</td>
<td>7. Child has altered palmar creases</td>
</tr>
<tr>
<td>1</td>
<td>8. Child has a smooth philtrum (ridge under nose flat)</td>
</tr>
</tbody>
</table>

Total Score =

Score of 4 or more consider FAS referral
83.8% accuracy, 93.1% sensitivity, 57% specificity

## Facial Features

- Low nasal bridge
- Short palpebral fissures (small eyes) - a normal feature in some races
- Small head circumference
- Bipalpebral folds
- Short nose
- Flat midface
- Indistinct philtrum (an undulations dimples)
- Thin upper lip

©2010
What is ARND?
Hitting

Plan = Hit → Time Out → 1–2 minutes

No Warnings
No Talking
Only 1–2 minutes

10 in a row

1 2 3 4 5 6 7 8 9 10
Can we divide a reward into pieces?
THE ARND BEHAVIORAL CHECKLIST

Name/ID: ___________________________ DOB: ___/___/_____ AGE: _____ SEX (circle one): F M

RACE (circle one): Caucasian  Native American  African American  Other

In order to complete this checklist:
1) Behaviors must be impaired for the age of the person being assessed.
2) Interviewee needs to have known the person being assessed for at least one month.

CHECK ALL THAT APPLY FOR THE APPROPRIATE AGE RANGE

<table>
<thead>
<tr>
<th>BEHAVIOR</th>
<th>3-6 Yrs.</th>
<th>7 Yrs.+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor attention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impulsive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disorganized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seems unaware of consequences of actions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No fear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would leave with a stranger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor social skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Few friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will talk or interact with anyone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easily manipulated and set up by others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socially inept (Inappropriate speech or touching)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty staying on topic during conversation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always talking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocktail speech - little content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too loud</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can't remember from one day to the next</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below average IQ (&lt;85)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor school performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspended or expelled from school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor sleeper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can't follow routine - needs reminders to get dressed, brush teeth, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temper tantrums</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extreme mood swings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requires constant supervision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Been in trouble with the law</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inpatient treatment for mental health, substance abuse, or in jail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inappropriate sexual behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor motor skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has or needs glasses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had foster care or was adopted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication for behavior - ever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother used alcohol during pregnancy (OPTIONAL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother used alcohol in last five months of this pregnancy (OPTIONAL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother has been in treatment for alcohol use (OPTIONAL)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL CHECKED: 16

(Continue assessment if score is greater than or equal to above.)
Hitting

Plan = Hit → Time Out → 1-2 Minutes

No Warnings/No Talking/Only 1-2 minutes

For each time out reward a positive behavior at least once. Older children require a different strategy.

---

Temper Tantrums

Plan = Walk away No talking 2-3 Minutes

Emphasize the need to apply the plan consistently (10 in a row) Tantrums

Reward a positive behavior 2 or 3 times for each time out.

---

Won’t go to bed on time

Plan: Bedtime routine

1. It’s time for bed 8:15 p.m. 2. PJs 3. Brush teeth 4. Story (must be in bed) 5. Show reward for tomorrow morning

Gets up → No Talking No Hugs No Drinks No Food → Put in bed (over & over)

10 in a row

1 2 3 4 5 6 7 8 9 10
<table>
<thead>
<tr>
<th>Day</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Drug Treatment</td>
<td>09:00 AM</td>
</tr>
<tr>
<td></td>
<td>Anger Management</td>
<td>02:00 PM</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Supervised Visitation</td>
<td>10:00 AM</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Parenting Class</td>
<td>09:30 AM</td>
</tr>
<tr>
<td>Thursday</td>
<td>Supervised Visitation</td>
<td>10:00 AM</td>
</tr>
<tr>
<td>Friday</td>
<td>Court</td>
<td>10:30 AM</td>
</tr>
</tbody>
</table>
SUBSTANCE ABUSE TREATMENT

Talking About Substance Abuse

DECISIONAL BALANCE

PROBLEMS

"Why do you drink?"

when I am unhappy.

with my friends.

with my partner.

BENEFITS

"What are advantages for you to stop drinking?"

my baby will be healthy.

I will have more money.

I will be healthier.

Explain
THE FUTURE
PAE, FASD AND THE COURTS
We have a choice:

Current Diagnostic Strategies

or

FASD Prevalence Rates
Willful
- Does not care
- Won’t listen
- Doesn’t want to change
- Same think over & over

Neuropsychiatric
- Social Impairments
- Comprehension
- Doesn’t understand others
- Does not learn from experience

Attributes of Behavior
Behavior Problem

- Willful
- Increased demands
- More blame
- Negative consequences
- More behavioral escalation

- Could change, but won’t
- Did task, but now refuses
- Fewer positive consequences
Decreased Attention to Negative Behaviors

- Less behavioral escalation
- Increased accommodations
- Long-term plans prevent escalation
- More positive behavior management
FASD: 2 Views

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

Impairments
- ADHD
  - Inattentive
  - Impulsive
  - Fidgety
- Learning Disorders
  - Comprehension Deficits
    - Listening
    - Reading
    - Listening and Reading
    - Memory Impairments
- Anxiety
Alcohol Exposure

- **FAS:** Diagnosed earlier, Neurological Disorders, Older, Smoking Mothers
- **Partial FAS:** Diagnosed Recently, Anger Disorders, Other Medications, 40 Week Gestation, Younger, Non-Smoking Mothers
- **Partial FAS:** Older at Diagnosis, Adopted/Foster Care, Many Siblings, ADHD, Alcohol, or Self-Injury Disorders, Mother in Treatment, Parents Not Married
- **No FAS:** Lives with Parents, Few Siblings, Parents Married, Neurological or Developmental Disorders
How Mother and Baby "Picked Up"

A case of Blatz Beer in your home means much to the young mother, and obviously baby participates in its benefits.

The malt in the beer supplies nourishing qualities that are essential at this time and the hops act as an appetizing, stimulating tonic.

Main 2400

Blatz
MILWAUKEE

Always the same good old Blatz
Breathalyzer reading by visit.
Conception

1st visit
124.09 days
range = 26-239
n = 366

Quit
n = 52

1st breathalyzer
BAL = .037
range = 0 to .210
n = 313
positive > .001

2nd visit
181.95 days
range = 127 to 249
n = 195

Date of last drink
X = 115.94 days
range = 15 to 239
n = 193 (52%)

2nd breathalyzer
BAL = .025
range = 0 to .182
n = 200

Date of last drink
before visit 2
X = 163.07
range = 96 to 241
n = 151 (41%)

Date of last drink
before delivery
X = 209.63
range = 143 to 254
n = 91 (25%)

Positive breathalyzer
BAL = .006
range = 0 to .061
n = 197

Birth
X = 233.7
range = 189-280
n = 366
FASD in Maine

- Annual Births: 12,700
- Annual FASD Births: 127
- Recurrent Cases: 31

8 will recur in families with multiple affected children.
FASD In Florida

- Entering year: 269,509 (Screen 1,078 day)
- Foster Care: 427,910
- FASD @ 25%: 106,995
- FASD @ 10%: 42,791

- Corrections: 98,010 (392 per day)
- FASD @ 25%: 24,502
- FASD @ 10%: 9,801