Introduction to Fetal Alcohol Spectrum Disorder (FASD)
Diagnosis and Assessment: The Role of the Psychologist

Northwest Psychological Fall Convention
Hope Finkelstein
FASD Program Manager
Alaska’s Department of Health and Social Services
Office of Substance Misuse and Addiction Prevention

Opening Statements
Sarah N. Mattson, Ph.D.
Overview of identification and diagnosis of FASD

Professor, Department of Psychology
Director for Clinical Research, Center for Behavioral Teratology
Co-Director, Center for Clinical and Cognitive Neuroscience
San Diego State University
Fetal Alcohol Spectrum Disorders: Overview of Identification and Diagnosis

Sarah N. Mattson, Ph.D.
Professor, Department of Psychology
Director for Clinical Research, Center for Behavioral Teratology
Co-Director, Center for Clinical and Cognitive Neuroscience
San Diego State University
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- **Center for Behavioral Teratology, SDSU:** Eileen Moore, Matthew Hyland, Natasia Courchesne, Riley Felicicchia, Gemma Bernes, Tara Jahan, Carissa Zambrano, Chloe Sobolewski, Kaitlin Carroll, Emily Duprey, Jill Vander Velde

- **Disclosures:** None
Outline

- What is FASD?
- The role of the psychologist in diagnosis
- New tools to aid identification and diagnosis
- Summary
- Questions
What is FASD?
Fetal Alcohol Spectrum Disorder (FASD)

- FASD is a group of neurodevelopmental disorders
  - Fetal alcohol syndrome (FAS)
  - Partial fetal alcohol syndrome (PFAS)
  - Alcohol-related neurodevelopmental disorder (ARND)
  - Alcohol-related birth defects (ARBD)

- The cause of FASD is exposure to alcohol in utero

- Cognitive and behavioral difficulties are hallmarks of FASD
FASD is not Rare

- A recent epidemiologic study, CoFASP, evaluated a total of 6,639 children selected from a population of 13,146 first graders from 4 communities in the U.S.
  - Rocky Mountain, Midwestern, Southeastern, and Pacific Southwestern regions

- Average age was 6.7y; 51.9% were male, and 79.3% were white (maternal race)

- A total of 222 cases of FASD were identified

- Conservative prevalence estimates for FASD ranged from 11.3-50.0 per 1000 children \[1.1-5.0\%\]

May et al., 2018
Definition of Documented Prenatal Alcohol Exposure

**TABLE 2 Definition of Documented Prenatal Alcohol Exposure (as Applied to the Diagnostic Categories Set Forth in Table 1)**

One or more of the following conditions must be met to constitute documented prenatal alcohol exposure during pregnancy (including drinking levels reported by the mother 5 mo before her report of pregnancy recognition or a positive pregnancy test documented in the medical record). The information must be obtained from the biological mother or a reliable collateral source (eg, family member, social service agency, or medical record):

- ≥6 drinks/wk for ≥2 wk during pregnancy
- ≥3 drinks per occasion on ≥2 occasions during pregnancy
- Documentation of alcohol-related social or legal problems in proximity to (before or during) the index pregnancy (eg, history of citation[s] for driving while intoxicated or history of treatment of an alcohol-related condition)
- Documentation of intoxication during pregnancy by blood, breath, or urine alcohol content testing
- Positive testing with established alcohol-exposure biomarker(s) during pregnancy or at birth (eg, analysis of fatty acid ethyl esters, phosphatidylethanol, and/or ethyl glucuronide in maternal hair, fingernails, urine, or blood, or placenta, or meconium)\(^\text{50-55}\)
- Increased prenatal risk associated with drinking during pregnancy as assessed by a validated screening tool or, for example, T-ACE (tolerance, annoyance, gut down, eye-opener) or AUDIT (alcohol use disorders identification test)\(^\text{15}\)

Assignment of documented prenatal alcohol exposure to any individual case requires the sound judgment of an experienced clinician.

*These criteria for maternal drinking are based on large epidemiologic studies that demonstrate adverse fetal effects from ≥3 drinks per occasion\(^\text{25,27}\) and others that indicate 1 drink/day as a threshold measure for FASD.\(^\text{32-33}\)*

Table from: Hoyme et al., 2016
Fetal Alcohol Syndrome (FAS)

- The effects of prenatal alcohol exposure were first described by Lemoine (1968) and Jones & Smith (1973).
- Jones & Smith described a pattern of primarily physical features in a small group of children born to alcoholic women and coined the term, “Fetal Alcohol Syndrome”.
- Diagnostic criteria were updated by the Institute of Medicine (1996) and Hoyme (2005, 2016).

Jones & Smith, 1973; Hoyme et al., 2016, Figure from Warren et al., 2011
<table>
<thead>
<tr>
<th>Domain</th>
<th>Feature</th>
<th>Requirement</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>Palpebral Fissures</td>
<td>≤10th centile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thin Vermilion Border</td>
<td>Rank 4 or 5 on a racially</td>
<td></td>
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<td></td>
<td></td>
<td>normed lip/philtrum guide</td>
<td></td>
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<tr>
<td></td>
<td>Smooth Philtrum</td>
<td>Rank 4 or 5 on a racially</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>normed lip/philtrum guide</td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>Height and/or Weight</td>
<td>≤10th centile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brain Abnormalities</td>
<td>OFC ≤10th centile</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Structural brain abnormalities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recurrent nonfebrile seizures</td>
<td></td>
</tr>
<tr>
<td>Neurobehavioral Impairment</td>
<td>Cognitive Impairment</td>
<td>Global impairment</td>
<td>GCA or IQ estimate ≥1.5SD below mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 or more neurobehavioral</td>
<td>Executive functioning, specific learning impairment, memory impairment,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>domain ≥1.5 SD below mean</td>
<td>or visual-spatial impairment</td>
</tr>
<tr>
<td></td>
<td>Behavioral Impairment</td>
<td>1 or more behavioral domain</td>
<td>Self-regulation: mood or behavioral regulation impairment, attention</td>
</tr>
<tr>
<td></td>
<td>(without Cognitive)</td>
<td>≥1.5 SD below mean</td>
<td>deficit, or impulse control</td>
</tr>
</tbody>
</table>
Fetal Alcohol Syndrome (FAS)

A diagnosis of FAS requires all features, A–D:
A. A characteristic pattern of **minor facial anomalies**, including >2 of the following:
   1. Short palpebral fissures (<10th centile)
   2. Thin vermillion border of the upper lip (rank 4 or 5 on a racially normed lip/philtrum guide, if available)
   3. Smooth philtrum (rank 4 or 5 on a racially normed lip/philtrum guide, if available)
B. Prenatal and/or postnatal **growth** deficiency
   1. Height and/or weight <10th centile (plotted on a racially or ethnically appropriate growth curve, if available)
C. Deficient **brain** growth, abnormal morphogenesis or neurophysiology, including >1 of the following
   1. Head circumference <10th percentile
   2. Structural brain anomalies
   3. Recurrent nonfebrile seizures (other cause of seizures have been ruled out)
D. **Neurobehavioral** impairment
   1. For children >3 y of age (a or b):
      a. WITH COGNITIVE IMPAIRMENT
         --Evidence of global impairment (general conceptual ability >1.5 SD below the mean, or performance IQ or verbal IQ or spatial IQ >1.5 SD below the mean) OR
         --Cognitive deficit in at least 1 neurobehavioral domain >1.5 SD below the mean (executive functioning, specific learning impairment, memory impairment, or visual-spatial impairment
      b. WITH BEHAVIORAL IMPAIRMENT WITHOUT COGNITIVE IMPAIRMENT:
         --Evidence of behavioral deficit in at least 1 domain >1.5 SD below the mean in impairments of self-regulation (mood or behavioral regulation impairment, attention deficit, or impulse control)
   2. For children <3 y of age:
      --Evidence of developmental delay >1.5SD below the mean

Table from: Hoyme et al., 2016
Partial FAS (PFAS) With Documented PAE

For children with documented prenatal alcohol exposure, a diagnosis of PFAS requires features A and B:

**A. A characteristic pattern of minor facial anomalies**, including >2 of the following:
   1. Short palpebral fissures (<10th centile)
   2. Thin vermillion border of the upper lip (rank 4 or 5 on a racially normed lip/philtrum guide, if available)
   3. Smooth philtrum (rank 4 or 5 on a racially normed lip/philtrum guide, if available)

B. **Neurobehavioral impairment**
   1. For children ≥3 y of age (a or b):
      a. **WITH COGNITIVE IMPAIRMENT**
         --Evidence of global impairment (general conceptual ability ≥1.5 SD below the mean, or performance IQ or verbal IQ or spatial IQ ≥1.5 SD below the mean)
         **OR**
         --Cognitive deficit in at least 1 neurobehavioral domain ≥1.5 SD below the mean (executive functioning, specific learning impairment, memory impairment, or visual-spatial impairment)
      b. **WITH BEHAVIORAL IMPAIRMENT WITHOUT COGNITIVE IMPAIRMENT:**
         --Evidence of behavioral deficit in at least 1 domain ≥1.5 SD below the mean in impairments of self-regulation (mood or behavioral regulation impairment, attention deficit, or impulse control)
   2. For children <3 y of age:
      --Evidence of developmental delay ≥1.5SD below the mean

Table from: Hoyme et al., 2016
Partial FAS (PFAS) Without Documented PAE

For children without documented prenatal alcohol exposure, a diagnosis of PFAS requires all features, A–C:

A. A characteristic pattern of **minor facial anomalies**, including ≥2 of the following:
   1. Short palpebral fissures (<10th centile)
   2. Thin vermillion border of the upper lip (rank 4 or 5 on a racially normed lip/philtrum guide, if available)
   3. Smooth philtrum (rank 4 or 5 on a racially normed lip/philtrum guide, if available)

B. **Growth** deficiency or deficient brain growth, abnormal morphogenesis or abnormal neurophysiology
   1. Height and/or weight <10th centile (plotted on a racially or ethnically appropriate growth curve, if available), or:
   2. Deficient brain growth, abnormal morphogenesis or neurophysiology, including ≥1 of the following
      a. Head circumference <10th percentile
      b. Structural brain anomalies
      c. Recurrent nonepileptic seizures (other cause of seizures have been ruled out)

C. **Neurobehavioral** impairment
   1. For children ≥3 y of age (a or b):
      a. WITH COGNITIVE IMPAIRMENT
         --Evidence of global impairment (general conceptual ability ≥1.5 SD below the mean, or performance IQ or verbal IQ or spatial IQ ≥1.5 SD below the mean)
         OR
         --Cognitive deficit in at least 1 neurobehavioral domain ≥1.5 SD below the mean (executive functioning, specific learning impairment, memory impairment, or visual-spatial impairment
      b. WITH BEHAVIORAL IMPAIRMENT WITHOUT COGNITIVE IMPAIRMENT:
         --Evidence of behavioral deficit in at least 1 domain ≥1.5 SD below the mean in impairments of self-regulation (mood or behavioral regulation impairment, attention deficit, or impulse control)
   2. For children <3 y of age:
      --Evidence of developmental delay ≥1.5SD below the mean

Table from: Hoyme et al., 2016
The Diagnosis of FAS and PFAS Relies on Facial Features

- While the criteria for FAS and PFAS include cognitive and behavioral impairment, facial features are integral to the diagnosis.

- The combination of facial features is relatively specific to FAS.

Figure from: Jones et al., 2013
The Diagnosis of FASD Reflects the Importance of Cognition and Behavior

- Facial features are not sufficiently sensitive
- The majority of alcohol-exposed children are not dysmorphic
- Children without facial dysmorphia demonstrate significant neurobehavioral deficits

Table 1: Comparative Prevalence Estimates for Specific Cognitive and Neurodevelopmental Disorders in 5 Studies of 4 Consecutive Birth Cohorts in the United States. From May et al., 2018; Figure from Mattson et al., 1997

![Graph showing standard scores for FSIQ, VIQ, and PIQ across NC, PEA, and FAS categories.](image-url)

Table from May et al., 2018; Figure from Mattson et al., 1997
Alcohol-Related Neurodevelopmental Disorder (ARND)

Requires A and B (cannot be made definitively in children <3 y of age):

A. Documented prenatal alcohol exposure

B. Neurobehavioral impairment (a or b)
   For children ≥3y of age (a or b):
   a. WITH COGNITIVE IMPAIRMENT
      --Evidence of global impairment Evidence of global impairment (general conceptual ability >1.5 SD below the mean, or performance IQ or verbal IQ or spatial IQ >1.5 SD below the mean) OR
      --Cognitive deficit in at least 1 neurobehavioral domain >1.5 SD below the mean (executive functioning, specific learning impairment, memory impairment, or visual-spatial impairment
   b. WITH BEHAVIORAL IMPAIRMENT WITHOUT COGNITIVE IMPAIRMENT:
      --Evidence of behavioral deficit in at least 1 domain >1.5 SD below the mean in impairments of self-regulation (mood or behavioral regulation impairment, attention deficit, or impulse control)

Table from: Hoyme et al., 2016
## Requirements for Diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Confirmed Prenatal Exposure to Alcohol</th>
<th>Facial Anomalies</th>
<th>Growth Deficiency</th>
<th>CNS Abnormalities</th>
<th>Neurobehavioral Impairment</th>
</tr>
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<td>FAS</td>
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<td>Required</td>
<td>Required</td>
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<tr>
<td>Partial FAS with documented PAE</td>
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<td>Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Required</td>
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<tr>
<td>Partial FAS without documented PAE</td>
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<td>Required</td>
<td>1 or more required</td>
<td>Not Required</td>
<td>Required</td>
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<tr>
<td>Alcohol-Related Neurodevelopmental Disorder (ARND)</td>
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<td>Not Required</td>
<td>Not Required</td>
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</tr>
</tbody>
</table>

Hoyme et al., 2016
Neurobehavioral Disorder Associated with Prenatal Alcohol Exposure (ND-PAE)

Included in DSM-5 appendix as a disorder requiring additional support but also included under “other specified neurodevelopmental disorder” and receives its own unique code 315.81
Core Symptoms of ND-PAE

- More than Minimal Prenatal Alcohol Exposure

- Neurocognitive Impairment (one or more):
  1. Impairment in Global Intellectual Functioning
  2. Impairment in Executive Functioning
  3. Impairment in Learning
  4. Impairment in Memory
  5. Impairment in Visual-Spatial Reasoning

- Self-Regulation Impairment (one or more):
  1. Impairment in Mood or Behavioral Regulation
  2. Impaired Attention
  3. Impairment in Impulse Control

- Adaptive Functioning Impairment (two* or more):
  1. Impairment in Communication
  2. Impairment in Social Interactions and Communication
  3. Impairment in Daily Living Skills
  4. Impairment in Motor Skills

- Onset of Symptoms in Childhood

DSM5 (2013), page 798-799
Fetal Alcohol Spectrum Disorders (FASDs)

- Fetal Alcohol Syndrome (FAS)
- Partial Fetal Alcohol Syndrome (pFAS)
- Alcohol-Related Birth Defects (ARBD)
- Neurobehavioral Disorder Associated with Prenatal Alcohol Exposure (ND-PAE)
- Alcohol-Related Neurodevelopmental Disorder (ARND)

Figure from: Glass & Mattson, 2015
A Comparison Among 5 Methods for the Clinical Diagnosis of Fetal Alcohol Spectrum Disorders

Claire D. Coles, Amanda R. Gailey, Jennifer G. Mulle, Julie A. Kable, Mary Ellen Lynch, and Kenneth Lyons Jones
The Role of the Psychologist in Diagnosis of FASD
# Requirements for Diagnosis

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<tr>
<td>FAS ¹</td>
<td>Not Required</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
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<tr>
<td>Partial FAS with documented PAE ¹</td>
<td>Required</td>
<td>Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Required</td>
</tr>
<tr>
<td>Partial FAS without documented PAE ¹</td>
<td>Not Required</td>
<td>Required</td>
<td>1 or more required</td>
<td></td>
<td>Required</td>
</tr>
<tr>
<td>Alcohol-Related Neurodevelopmental Disorder (ARND) ²</td>
<td>Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Required</td>
</tr>
<tr>
<td>Neurobehavioral Disorder Associated with Prenatal Alcohol Exposure (ND-PAE)²</td>
<td>Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Required</td>
</tr>
</tbody>
</table>

¹ Hoyme et al. (2016)  
² From the Diagnostic and Statistical Manual (American Psychiatric Association, 2013)
Neurobehavioral Impairment is Part of all FASD Diagnoses

- FASD diagnosis should be conducted by a multidisciplinary team that includes a psychologist, neuropsychologist, or other developmental clinician.
FASD diagnostic algorithm.
Neurobehavior From 10,000 Feet

- Global intellectual deficits
  - Intellectual deficiency (IQ<70 plus adaptive function deficits) common but not universal
  - Average IQ in the 70s-80s

- Deficits in executive function, verbal learning, nonverbal learning/memory, language visuospatial function, motor function, and attention

- Problem behaviors including hyperactivity, impulsivity, distractibility

- Elevated rates of psychiatric disorders including ADHD, conduct disorder, oppositional defiant disorder, depressive disorders

- Academic difficulties, adaptive behavior deficits, delinquency, substance abuse, legal trouble, dependent living

- Deficits occur in alcohol-exposed individuals with and without facial dysmorphology

Barr et al., 2006; Fryer et al., 2007; Mattson et al., 1998, 2011; O’Conner et al., 2001, 2002, 2006; , Ware et al., 2012
Psychologists Play a Critical Role in FASD Diagnosis

- Using current practices, as many as 80% of affected children are not identified or are misdiagnosed.

- Reasons for this failure include:
  - Over-reliance on physical features – the majority of those affected are not dysmorphic and physical markers of exposure are not sufficiently sensitive.
  - Drinking records are often unavailable (or not requested).
  - Stigma surrounding alcohol inhibits proper assessment.

- A neurobehavioral profile that is reliable, valid, sensitive, and specific, will help us accurately identify these children.
  - Providing a clinically useful, effective, and efficient screening tool will further improve the clinician’s ability to identify children.

Mattson & Riley, 2011; Chasnoff et al., 2015
New Tools to aid Identification & Diagnosis of FASD
Why Do We Need New Tools?

- 80% of affected individuals are undiagnosed or misdiagnosed
- There are not enough specialists trained in the diagnosis of FASD
  - In 2019, there were “at most just over 2 clinical geneticists per 1 million in the population.” (Maiese et al., 2019)
- General clinicians are not confident in their knowledge of FASD or the skills needed for diagnosis
  - In 2002, 49% of Toronto-area family physicians surveyed had “very little confidence” in their ability to diagnose FAS and 18% had suspicions of FAS but did not make a diagnosis (Nevin et al., 2002)
  - In 2006, over 75% of pediatricians in Western Australia suspected FAS but did not make a diagnosis (Elliott, 2006)
  - In 2018, in the CoFASP epidemiologic study, only 2 of 222 (0.90%) children with FASD were known to be previously diagnosed (May et al., 2018)
- Traditional tools (lip/philtrum tools, palpebral fissure measurements) have weak to moderate reliability and are prone to error, even in experts
  - For example, at some ages, a 1mm difference in PFL results in a change from 25th% to 10th%
What Types of Tools are Being Developed?

- Telemedicine (Drs. Jones and Del Campo)
  - Allows evaluation of patients in remote areas or without access to specialists
  - Does not address the lack of specialists overall

- 3D facial imaging (Drs. Suttie, Mukherjee, and Hammond)
  - Can be used to automate facial examinations and also adds novel measurements to the standard exam
  - Requires specialized tools and analysis and not yet readily available but promising

- mHealth
  - MorpheusQ
  - FASD-Tree
  - BRAIN-online
Clinical Translation of 3D Facial Analysis Techniques

Fully automated objective measurements of
- PFL
- Nose/philtrum length
- Lip Area/Circularity and volume
- Micrognathia
- Shape analysis – philtrum shape, midfacial hypoplasia
What Types of Tools are Being Developed?

- **Telemedicine (Drs. Jones and Del Campo)**
  - Allows patients in remote areas or without access to specialists to be evaluated
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- **mHealth**
  - MorpheusQ
  - FASD-Tree
  - BRAIN-online
MorpheusQ

- Lip & Philtrum Rank
- PFL measurement
- 3D Model

Patent

Dr. Edward Riley, SDSU, and Dr. Ganz Chockalingam, Blue Resonance
Goals of MorpheusQ Development

- To develop tools that would:
  - Empower non-dysmorphologists to screen for FAS
  - Provide more confidence
  - Improve accuracy in the diagnostic process
  - Make screening and diagnostic assistance in remote areas as accessible as in San Diego
Accuracy of MorpheusQ

- Using MorpheusQ’s lip rank tool, experts agreed 85% of the time on whether a patient had FAS with a correlation of .90

- Nonexperts agreed with the expert 78-88% of the time, with a correlation of .82

**Lip Rank**

**Palpebral Fissure Length**

- PFL measurements are reliable using MorpheusQ
  - SD of .47mm (range .41-.62mm) for repeated measurement (10x) of 3 people

- PFL measurements were compared using a mannequin
  - Calipers = 23.85mm
  - MorpheusQ = 23.38mm (SD = 0.49mm)
  - After manual correction of endo- and exocanthion landmarks, MorpheusQ = 23.67mm

---

Dr. Edward Riley, SDSU, and Dr. Ganz Chockalingam, Blue Resonance
We developed a web-based screening tool that aids in identification and diagnosis of FASD.

Only 4 measures are collected:
- Physical measurements
- Parent report of behavior
  - CBCL
  - Vineland Adaptive Behavior Scale
- IQ score (reported or assessed; optional)

FASD-Tree produces two outcomes:
- Decision tree outcome (yes/no)
- Risk score (0-5)

Patent in progress
FASD-Tree App
Accuracy of the FASD-Tree

- Both the decision tree and risk score were independently developed and validated in large samples (N>400 each) with overall accuracy rates >80%.

- In a new sample, 312 children were evaluated using the FASD-tree (combining the decision tree and risk score).

- The FASD-Tree had overall accuracy of 81.3%.
  - Decision tree alone was 76.9% accurate.
  - Risk score alone was 84.2% accurate.

- FASD-Tree outcomes relate to neuropsychological functioning (e.g., IQ and executive function).
Brief Assessment of Individual Neurobehavior (BRAIN-online)

- We developed a novel web-based neurobehavioral assessment designed to screen for cognitive impairment.
- The test includes 7 subtests measuring fine-motor speed, reaction time, response inhibition/impulsivity, attention, problem-solving, processing speed, memory, spatial working memory, and set-shifting and.
- Requires 30-45 minutes and is completed online independently by each individual using their home computer, laptop, or tablet (with connected keyboard).
- Reaction time and accuracy measures are available.
- We have tested 100 youth and 300 young adults. Our research suggests that the results of BRAIN-online can distinguish between children with histories of prenatal alcohol exposure and controls.

Patent in progress
Summary

- FASD is a complex neurodevelopmental disorder

- FASD is associated with a wide-ranging behavioral and cognitive impairment, and these effects are both sensitive and specific

- Yet, as many as 80% of affected children are not clinically identified

- New tools are under development to aid identification and diagnosis
Questions and Discussion

Sarah Mattson
sarah.mattson@sdsu.edu
Center for Behavioral Teratology
619-594-1228
Reporting using the 4-digit code
What is the FASD 4-digit code?

Erika L. Stannard, PsyD, Ptarmigan Connections

Reference:
Our Discussion Today...

- What are the requirements for FASD evaluation in Alaska and Washington?
- Who conducts the evaluation? When should it be completed?
- How is the assessment done & what is this 4-digit code, anyway?
- Interpretation of test results & what results tell you about your patient
- Q & A
How does WA and AK conduct FASD Evaluations?

A FASD evaluation is an investigation of permanent birth defects caused by exposure to alcohol during development in the uterus.

The pattern of severity is dependent on the timing, frequency, and quantity of alcohol exposure.

Adverse childhood events confound the issue.
FASD is a challenge to diagnose
Both Alaska and Washington require team-based FASD assessments, using the University of Washington FASD 4-digit code.

- **Alaska** requires multi-disciplinary team evaluations.
- **Washington** conducts 4-hour arena evaluations.

**FASD training:**
The FASDPN at the UW offers free training for community professionals interested in learning how to recognize, refer, diagnose, treat, and prevent FASD. Information for how to enroll in the Training programs is posted on the WA FASDPN website. [http://depts.washington.edu/fasdpn/htmls/training.htm](http://depts.washington.edu/fasdpn/htmls/training.htm)
Who conducts the evaluation?

The FASD team usually contains the following members, in addition to the all important **TEAM COORDINATOR**.
University of Washington
4-Digit Diagnostic Code

4444 = Most Severe Presentation

(multitude of codes increases accuracy and provides a spectrum for measurement)

1111 = Normal Growth

1 (complete absence) - 4 (strong presence)

- Growth Deficiency
- FAS Facial Phenotype
- CNS Abnormalities
- Prenatal Alcohol Exposure
The “Short Form”
**DIGIT 1: GROWTH**

**Table 1: Deriving the ABC Score for Growth**

<table>
<thead>
<tr>
<th>Percentile Range</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \leq 3^{rd} )</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>( &gt;3^{rd} ) and ( \leq 10^{th} )</td>
<td><strong>B</strong></td>
<td><strong>B</strong></td>
</tr>
<tr>
<td>( &gt;10^{th} )</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

**Table 2: Converting the Growth ABC-Score to a 4-Digit Diagnostic Rank for Growth**

<table>
<thead>
<tr>
<th>4-Digit Diagnostic Rank</th>
<th>Growth Deficiency Category</th>
<th>Height-Weight ABC-Score Combinations</th>
</tr>
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<tbody>
<tr>
<td>4</td>
<td>Severe</td>
<td>CC</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Moderate</td>
<td>CB, <strong>BC</strong>, CA, AC</td>
</tr>
<tr>
<td>2</td>
<td>Mild</td>
<td>BA, BB, AB</td>
</tr>
<tr>
<td>1</td>
<td>None</td>
<td>AA</td>
</tr>
</tbody>
</table>
Which Growth Curves?

WHO Growth Standards Are Recommended for Use in the U.S. for Infants and Children 0 to 2 Years of Age

The World Health Organization (WHO) released a new international growth standard statistical distribution in 2006, which describes the growth of children ages 0 to 59 months living in environments believed to support what WHO researchers view as optimal growth of children in six countries throughout the world, including the U.S. The distribution shows how infants and young children grow under these conditions, rather than how they grow in environments that may not support optimal growth.

Recommendation

CDC recommends that health care providers:

- Use the [WHO growth charts](https://www.cdc.gov/growthcharts/whoCharts.htm) to monitor growth for infants and children ages 0 to 2 years of age in the U.S.
- Use the [CDC growth charts](https://www.cdc.gov/growthcharts/whoCharts.htm) to monitor growth for children age 2 years and older in the U.S.

Reference: [https://www.cdc.gov/growthcharts/whoCharts.htm](https://www.cdc.gov/growthcharts/whoCharts.htm)
DIGIT 2: FAS Facial Phenotype

- Short palpebral fissure length
- Thin upper lip
- Smooth philtrum
Facial Feature Measurements

Caucasian and African American Norms

<table>
<thead>
<tr>
<th>Rank</th>
<th>Lip-Philtrum Guide 1: Caucasian</th>
<th>ABC Scores</th>
<th>Lip-Philtrum Guide 2: African American</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper Lip Cir.</td>
<td>Philtrum</td>
<td>Upper Lip</td>
</tr>
<tr>
<td>5</td>
<td>≥ 131.5</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>131.4 to 76.5</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>3</td>
<td>76.4 to 57.5</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>2</td>
<td>57.4 to 42.5</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>1</td>
<td>≤ 42.4</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

Palpebral Fissure Length

Measure from the endocanthion to the exocanthion. Have patient look up, while holding head level, to standardize fissure measurement.

FEMALE and MALE (At Birth)
Table 3: Deriving the ABC-Score for Facial Phenotype

<table>
<thead>
<tr>
<th>5-Point Likert Rank for Philtrum &amp; Lip</th>
<th>Z-score* for Palpebral Fissure Length</th>
<th>Circle the ABC-Scores for:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Palpebral Fissure</td>
</tr>
<tr>
<td>4 or 5</td>
<td>≤ -2 SD</td>
<td>C</td>
</tr>
<tr>
<td>3</td>
<td>&gt;-2 SD and ≤ -1 SD</td>
<td>B</td>
</tr>
<tr>
<td>1 or 2</td>
<td>&gt; -1 SD</td>
<td>A</td>
</tr>
</tbody>
</table>

Table 4: Converting the Facial ABC-Score to a 4-Digit Diagnostic Rank for Face

<table>
<thead>
<tr>
<th>4-Digit Diagnostic Rank</th>
<th>Level of Expression of FAS Facial Features</th>
<th>Palpebral Fissure - Philtrum - Lip ABC-Score Combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Severe</td>
<td>CCC</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
<td>CCB, CBC, BCC</td>
</tr>
<tr>
<td>2</td>
<td>Mild</td>
<td>CCA, CAC, CBB, CBA, CAB, CAA, BCB, BCA, BBC, BAC, ACC, ACB, ACA, ABC, AAC</td>
</tr>
<tr>
<td>1</td>
<td>None</td>
<td>BBB, BBA, BAB, BAA, ABB, ABA, AAB, AAA</td>
</tr>
</tbody>
</table>
DIGIT 3: CNS Damage

BASIC PREMISE -

1. “Individuals with prenatal alcohol exposure can present with structural, neurological and/or functional CNS abnormalities;

2. that these CNS abnormalities occur along a continuum of severity; and

3. that not all functional abnormalities are due to underlying brain damage.”

Underlying CNS Damage
Rank 1-4

Severity of Brain Dysfunction
Rank 1-3

2 Scales in 1!
CNS Functional Domains

- Cognition
- Academic Achievement
- Adaptive Behavior / Social Skills
- Memory
- Executive Function
- Motor / Sensory Integration
- Language
- Attention / Hyperactivity

Ranking

1 = neurotypical
2 = functional impairment
3 = 3 areas > 2SD from mean
**CNS Damage:**

<table>
<thead>
<tr>
<th>4-Digit Diagnostic Rank</th>
<th>Probability of CNS Damage</th>
<th>Confirmatory Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Definite</td>
<td>• Microcephaly: OFC 2 or more SDs below the norm. and/or • Significant abnormalities in brain structure of presumed prenatal origin. and/or • Evidence of hard neurological findings likely to be of prenatal origin.</td>
</tr>
<tr>
<td></td>
<td>Structural and/or Neurological Abnormalities</td>
<td>Static Encephalopathy</td>
</tr>
<tr>
<td>3</td>
<td>Probable</td>
<td>• Significant impairment in three or more domains of brain function such as, but not limited to: cognition, achievement, memory, executive function, motor, language, attention, activity level, neurological ‘soft’ signs.</td>
</tr>
<tr>
<td></td>
<td>Significant Dysfunction</td>
<td>Static Encephalopathy</td>
</tr>
<tr>
<td>2</td>
<td>Possible</td>
<td>• Evidence of delay or dysfunction that suggest the possibility of CNS damage, but data to this point do not permit a Rank 3 classification.</td>
</tr>
<tr>
<td></td>
<td>Mild to Moderate Delay or Dysfunction</td>
<td>Neurobehavioral Disorder</td>
</tr>
<tr>
<td>1</td>
<td>Unlikely</td>
<td>• No current evidence of delay or dysfunction likely to reflect CNS damage.</td>
</tr>
</tbody>
</table>
Table 6: Criteria for Prenatal Alcohol Exposure Ranks 1 through 4

<table>
<thead>
<tr>
<th>4-Digit Diagnostic Rank</th>
<th>Prenatal Alcohol Exposure Category</th>
<th>Description of Alcohol Use During Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>High Risk</td>
<td>• Alcohol use during pregnancy is CONFIRMED.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Exposure pattern is consistent with the medical literature placing the fetus at “high risk” (generally high peak blood alcohol concentrations delivered at least weekly in early pregnancy).</td>
</tr>
<tr>
<td>3</td>
<td>Some Risk</td>
<td>• Alcohol use during pregnancy is CONFIRMED.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Level of alcohol use is less than in Rank (4) or level is unknown.</td>
</tr>
<tr>
<td>2</td>
<td>Unknown Risk</td>
<td>• Alcohol use during pregnancy is UNKNOWN.</td>
</tr>
<tr>
<td>1</td>
<td>No Risk</td>
<td>• Alcohol use during pregnancy is CONFIRMED to be completely ABSENT from conception to birth.</td>
</tr>
</tbody>
</table>
Structured interview to support the alcohol code:

## MATERNAL ALCOHOL USE

### Alcohol Consumption of the Birth Mother

<table>
<thead>
<tr>
<th>Before Pregnancy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>average number of drinks per drinking occasion:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>maximum number of drinks per occasion:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>average number of drinking days per week:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type(s) of alcohol</th>
<th>wine</th>
<th>beer</th>
<th>liquor</th>
<th>unknown</th>
<th>Other (specify)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>During Pregnancy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>average number of drinks per drinking occasion:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>maximum number of drinks per occasion:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>average number of drinking days per week:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type(s) of alcohol</th>
<th>wine</th>
<th>beer</th>
<th>liquor</th>
<th>unknown</th>
<th>Other (specify)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Trimester(s) in which alcohol was consumed</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>unknown</th>
<th>none</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was the birth mother ever reported to have a problem with alcohol?</td>
<td>yes</td>
<td>suspected</td>
<td>no</td>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td>Was the birth mother ever diagnosed with alcoholism?</td>
<td>yes</td>
<td>suspected</td>
<td>no</td>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td>Did the birth mother ever receive treatment for alcohol addiction?</td>
<td>yes</td>
<td>suspected</td>
<td>no</td>
<td>unknown</td>
<td>unknown</td>
</tr>
</tbody>
</table>

| Was alcohol use during this pregnancy positively confirmed? | yes | no |
| If yes, source of confirmation: |  |
| Reported use of alcohol during this pregnancy is: | Reliable | Somewhat reliable | Unknown reliability |

<table>
<thead>
<tr>
<th>Other information about alcohol use during this pregnancy</th>
<th></th>
</tr>
</thead>
</table>


4-Digit Code

<table>
<thead>
<tr>
<th>Significant</th>
<th>Severe</th>
<th>Definite</th>
<th>4</th>
<th>Growth</th>
<th>4</th>
<th>High risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>Moderate</td>
<td>Probable</td>
<td>3</td>
<td>Face</td>
<td>3</td>
<td>Some risk</td>
</tr>
<tr>
<td>Mild</td>
<td>Mild</td>
<td>Possible</td>
<td>2</td>
<td>CNS</td>
<td>2</td>
<td>Unknown</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
<td>Unlikely</td>
<td>1</td>
<td>Alcohol</td>
<td>1</td>
<td>No risk</td>
</tr>
<tr>
<td>Growth</td>
<td>FAS Facial</td>
<td>CNS</td>
<td></td>
<td>Alcohol</td>
<td>Prenatal</td>
<td></td>
</tr>
<tr>
<td>Deficiency</td>
<td>Features</td>
<td>Damage</td>
<td></td>
<td>Alcohol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The 4 diagnoses that fall under the umbrella of FASD:

**Four Diagnoses under the Umbrella of FASD**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Growth</th>
<th>FAS Face</th>
<th>Brain</th>
<th>Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FAS</td>
<td>growth</td>
<td>face</td>
<td>severe</td>
<td>alc</td>
</tr>
<tr>
<td>2. PFAS</td>
<td></td>
<td>face</td>
<td>severe</td>
<td>alc</td>
</tr>
<tr>
<td>3. SE/AE*</td>
<td></td>
<td></td>
<td></td>
<td>alc</td>
</tr>
<tr>
<td>4. ND/AE</td>
<td></td>
<td></td>
<td></td>
<td>alc</td>
</tr>
</tbody>
</table>

- Fetal Alcohol Syndrome
- Partial Fetal Alcohol Syndrome
- Static Encephalopathy / Alc Exposed
- Neurobehavioral Disorder / Alc Exposed
Don’t worry, there’s a table for that too!

<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Diagnostic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1111</td>
<td>V</td>
<td>No sentinel physical findings or CNS abnormalities detected (no alcohol exposure)</td>
</tr>
<tr>
<td>1112</td>
<td>P</td>
<td>No sentinel physical findings or CNS abnormalities detected (alcohol exposure unk.)</td>
</tr>
<tr>
<td>1113</td>
<td>J</td>
<td>No sentinel physical findings or CNS abnormalities detected (alcohol exposed)</td>
</tr>
<tr>
<td>1114</td>
<td>J</td>
<td>No sentinel physical findings or CNS abnormalities detected (alcohol exposed)</td>
</tr>
<tr>
<td>1121</td>
<td>T</td>
<td>Neurobehavioral disorder (no alcohol exposure)</td>
</tr>
<tr>
<td>1122</td>
<td>N</td>
<td>Neurobehavioral disorder (alcohol exposure unknown)</td>
</tr>
<tr>
<td>1123</td>
<td>H</td>
<td>Neurobehavioral disorder (alcohol exposed)</td>
</tr>
<tr>
<td>1124</td>
<td>H</td>
<td>Neurobehavioral disorder (alcohol exposed)</td>
</tr>
<tr>
<td>1131</td>
<td>R</td>
<td>Static encephalopathy (no alcohol exposure)</td>
</tr>
<tr>
<td>1132</td>
<td>L</td>
<td>Static encephalopathy (alcohol exposure unknown)</td>
</tr>
<tr>
<td>1133</td>
<td>F</td>
<td>Static encephalopathy (alcohol exposed)</td>
</tr>
<tr>
<td>1134</td>
<td>F</td>
<td>Static encephalopathy (alcohol exposed)</td>
</tr>
<tr>
<td>1141</td>
<td>R</td>
<td>Static encephalopathy (no alcohol exposure)</td>
</tr>
<tr>
<td>1142</td>
<td>L</td>
<td>Static encephalopathy (alcohol exposure unknown)</td>
</tr>
<tr>
<td>1143</td>
<td>F</td>
<td>Static encephalopathy (alcohol exposed)</td>
</tr>
<tr>
<td>1144</td>
<td>F</td>
<td>Static encephalopathy (alcohol exposed)</td>
</tr>
<tr>
<td>1211</td>
<td>V</td>
<td>No sentinel physical findings or CNS abnormalities detected (no alcohol exposure)</td>
</tr>
<tr>
<td>1212</td>
<td>P</td>
<td>No sentinel physical findings or CNS abnormalities detected (alcohol exposure unk.)</td>
</tr>
<tr>
<td>1213</td>
<td>J</td>
<td>No sentinel physical findings or CNS abnormalities detected (alcohol exposed)</td>
</tr>
<tr>
<td>1214</td>
<td>J</td>
<td>No sentinel physical findings or CNS abnormalities detected (alcohol exposed)</td>
</tr>
<tr>
<td>1221</td>
<td>T</td>
<td>Neurobehavioral disorder (no alcohol exposure)</td>
</tr>
<tr>
<td>1222</td>
<td>N</td>
<td>Neurobehavioral disorder (alcohol exposure unknown)</td>
</tr>
<tr>
<td>1223</td>
<td>H</td>
<td>Neurobehavioral disorder (alcohol exposed)</td>
</tr>
<tr>
<td>1224</td>
<td>H</td>
<td>Neurobehavioral disorder (alcohol exposed)</td>
</tr>
<tr>
<td>1231</td>
<td>R</td>
<td>Static encephalopathy (no alcohol exposure)</td>
</tr>
<tr>
<td>1232</td>
<td>F</td>
<td>Static encephalopathy (alcohol exposure unknown)</td>
</tr>
</tbody>
</table>
What to expect during a Ptarmigan Connections FASD assessment

Our hope for the clinic process... pre-COVID-19, anyway...
When should FASD testing be completed?

- KNOWN alcohol exposure is the key to diagnosis.
- Usually best assessed age 6+
How to talk to families about a FASD evaluation

Normalize discussions about prenatal alcohol exposure to remove the stigma of answering honestly

Document along the way

Collect records

Start referrals early
What will FASD test results tell me about my patient?

Testing can identify where your patient falls on the spectrum and determine the brain regions involved.

For example, difficulty reading could be due to:

- Attention problems
- Language disorder
- Auditory processing problems
- Reading Disability
How will FASD test results affect school decisions?

Test results can guide teachers, therapists, medical professionals, and families to better help the child achieve his or her potential.

However, a medical diagnosis is different from a special education eligibility determination. Only an IEP team can create or modify an IEP.
Questions
Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.  

Albert Einstein

Erika L. Stannard, PsyD
Ptarmigan Connections
PtarmiganConnections.com
3505 E. Meridian Park Loop, Ste 200
Wasilla, AK 99654
907-357-4400 (office)
907-357-4410 (fax)
Neuropsychological assessment related to FASD
FASD

Neuropsychological Evaluation

Dr. Jacqueline Bock, PhD
Northern Psychology Resources ~ Soldotna, Alaska

Central Peninsula FASD Team at Frontier Community Services
~ Soldotna, Alaska
FROM THERE TO HERE....

• Public Schools
• Michael Dorris and the book, The Broken Cord

• FAS / FAE Conference
  presented by Northwest Indian College in Washington State

“If a woman is drinking while she is pregnant – there is something else wrong”

“These kids get themselves into trouble – they often sound superficially competent”
CENTRAL PENINSULA FASD TEAM
Frontier Community Services in Soldotna, Alaska

• Serves adults and children

• Different needs and stages in human development
  – Highlights the need for early diagnosis and intervention
  – The impact of trauma
  – Development of secondary disabilities
  – Adverse events

https://www.fcsonline.org/services_fetal.html
WHY NEUROPSYCHOLOGICAL ASSESSMENT?

• A critical step in the diagnostic process

• Understand the person’s unique strengths and limitations
  – Daily functioning
  – Design intervention
  – Prevent or reduce the impact of secondary disabilities
FROM REFERRAL TO RESULTS

• Referral sources

• Interview, mental status examination, collection of collateral records, interviews with others who work with or care for the client

• Tailoring the assessment to the individual
  – Age
  – Abilities and tolerance for assessment
  – Behavior

• Flexible battery of assessment tools (tests)
MORE THAN A SCORE

• Report by parents, self, etc

• Collateral Information
  Medical / school / social records

• Observations and interactions during the assessment

• Individual test scores
  Item analysis
  Performance within a test

• Patterns of scores throughout the assessment
AREAS ASSESSED

Cognitive Functioning

- Weschler Intelligence Scales for Adults, Fourth Edition
- Wechsler Preschool and Primary Scales of Intelligence, 4th Edition (WPPSI-IV)
- Wechsler Intelligence Scale for Children, 5th Edition (WISC-V)
- Stanford-Binet Scales of Intelligence, 5th Edition (SB-5)
- Leiter International Performance Scale, 3rd Edition (Leiter-3)
AREAS ASSESSED

Academic achievement
• Wechsler Individual Achievement Test, 5th Edition (WIAT-V)
• Woodcock Johnson Tests of Achievement, 4th Edition (WJ-4)
• KTEA-3

School readiness
• Bracken Basic Concept Scale 3rd Edition – Receptive (BBCS – 3:R)
• Bracken Basic Concept Scale – Expressive

Functional academics
• Texas Functional Living Scales
Attention and executive functioning

Executive functioning is a set of interrelated cognitive processes that have a vital role in all aspects of adaptive functioning in daily life. The goals of executive functioning include:

(a) demonstrating purposeful, goal-directed activity
(b) displaying an active problem-solving approach
(c) exerting self-control
(d) demonstrating independence
(e) developing an independent self-management and the ability to consider outcomes

The real-life implications of executive functioning are independent of one’s general intellectual ability such as the Full-Scale IQ score. Rather, executive processes mediate one’s ability to use intellectual ability and skill effectively.
AREAS ASSESSED

Attention and Executive Functioning

- Developmental Neuropsychological Assessment, 2nd Edition (NEPSY-II)
  - Auditory Attention and Response, Animal Sorting, Statue
- Color Trails Test (Children and Adults)
- Tasks of Executive Control (TEC)
- Conners Continuous Performance Test, 3rd Edition (CPT-III)
- Test of Everyday Attention for Children (TEA-Ch)
- Stroop Color Word Test
- Delis Kaplan Executive Functioning System (D-KEFS)
  - Color-Word Interference, Design Fluency, and Tower test
- NAB Executive Functioning Battery
- Wisconsin Card Sorting Test (WCST)
- Iowa Gambling Test (IGT)

Rating Scales
- Delis Rating of Executive Functioning (D-REF)
- Behavior Inventory of Executive Functioning, Preschool Edition (BRIEF-P)
- Behavior Inventory of Executive Functioning, 2nd Edition (BRIEF-2)
- Behavior Inventory of Executive Functioning, Adult Edition (BRIEF-A)
AREAS ASSESSED

Language

- Peabody Picture Vocabulary Test, 5th Edition (PPVT-V)
- CELF-5 Metalinguistic
- Expressive One-Word Picture Vocabulary Test, 4th Edition (EOWPVT-4)
- Developmental Neuropsychological Assessment, 2nd Edition (NEPSY-II)
- Comprehension, verbal fluency
- Delis Kaplan Executive Functioning System (D-KEFS)
  - Verbal Fluency, Proverbs, Word Context
- NAB Naming Test
AREAS ASSESSED

Memory and Learning

California Test of Verbal Learning, Children’s Edition (CVLT-C)
Weschler Memory Scales
California Test of Verbal Learning, 3rd Edition (CVLT-3)
Child and Adolescent Memory Profile (ChAMP)
Developmental Neuropsychological Assessment, 2nd Edition (NEPSY-II)
  Narrative Memory, Memory for Faces, Sentence Repetition, Memory for Designs
Rey Complex Figure Test (RCFT)
Repeatable Battery for Neuropsychological Status (RBANS)
AREAS ASSESSED

Visuospatial / visuomotor

- Wide Range Assessment of Visual Motor Abilities (WRAVMA)
- Bender Gestalt Test (Bender)
- Lafayette instruments Grooved Pegboard
- Judgment of Line Orientation (JLO)
- Identi-Fi

Sensory

Sensory Profile

self or parent report / review of records
AREAS ASSESSED

Adaptive Behavior

- Adaptive Behavior Assessment System, 3rd Edition (ABAS-III)
- Vineland Adaptive Behavior System
- Texas Functional Living Scales (TFLS)

Personality and Emotional / Behavioral

- Observation and a thorough interview / review of records
- Child Behavior Check List (CBCL)
- Beck (depression and anxiety) Inventories
- MMPI-2 or MMPI-A
- Personality Assessment Inventory (Adult and Adolescent)
PUTTING IT ALL TOGETHER

• More Than a Score Part Two

• Example using attention and executive functioning

• Analyzing the results for an accurate clinical picture
DIAGNOSIS AS A CHILD vs DURING ADULTHOOD

• Protective factors

• Adverse life events

• Intervention as early as possible

• Diagnoses that may assist in gaining services and educational accommodations
FUTURE DIRECTIONS, INTERESTS, and CONCERNS

• Greater accessibility to diagnostic teams in rural areas

• FASD in the legal system

• Trauma and adverse life events that may contribute to drinking (and other substance use) during pregnancy as well as a higher risk for people with FASD

and most of all ... PREVENTION

“If a woman is drinking while she is pregnant – there is something else wrong...”


Video Teleconference Assessment and Evaluations in COVID-land
Telepsychology

Telemedicine

eHealth

Teleneuropsychology

Telehealth
GUIDELINES FOR THE PRACTICE OF TELEPSYCHOLOGY (APA, 2013)

• Guideline 1: Competency of the Psychologist
• Guideline 2: Standard of Care in the Delivery of Telepsychology Services
• Guideline 3: Informed Consent
• Guideline 4: Confidentiality of Data and Information
• Guideline 5: Security and Transmission of Data and Information
• Guideline 6: Disposal of Data and Information and Technologies
• Guideline 7: Testing and Assessment
• Guideline 8: Interjurisdictional Practice
ACTIONS

• Emergency Courtesy Licensure
• Testing Guidance
• Expanded Reimbursement
• Free trainings
### Table 1: Telehealth Policies Before and During the COVID-19 Public Health Emergency<sup>a</sup>

<table>
<thead>
<tr>
<th>Services Allowed for Delivery via Telehealth</th>
<th>Total Number of States In 2019</th>
<th>Number of States As of May 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Health</td>
<td>47</td>
<td>51</td>
</tr>
<tr>
<td>Primary Care</td>
<td>36</td>
<td>51</td>
</tr>
<tr>
<td>Dental</td>
<td>19</td>
<td>39</td>
</tr>
<tr>
<td>Physical, Occupational, and Speech Therapy</td>
<td>16</td>
<td>49</td>
</tr>
<tr>
<td>Maternity</td>
<td>15</td>
<td>31</td>
</tr>
<tr>
<td>Long-term Services and Supports</td>
<td>14</td>
<td>41</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Providers Allowed for Service Delivery via Telehealth</th>
<th>Total Number of States In 2019</th>
<th>Number of States As of May 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>42</td>
<td>51</td>
</tr>
<tr>
<td>Behavioral Health Providers</td>
<td>41</td>
<td>50</td>
</tr>
<tr>
<td>Advanced Practice Providers</td>
<td>36</td>
<td>43</td>
</tr>
<tr>
<td>Dentists</td>
<td>15</td>
<td>35</td>
</tr>
</tbody>
</table>

INTER ORGANIZATIONAL PRACTICE COMMITTEE

Guidance for Teleneuropsychology in Response to the COVID-19 Pandemic (April, 2020)

- Licensure Issues
- Reimbursement
- Informed Consent
- Interviewing and Feedback in Teleneuropsychology
- Reporting Results of TeleNP Assessment Limitations
- Telehealth and Teleneuropsychology Platforms
- Strategies for Conducting a Teleneuropsychology Episode of Care
- Test Selection
- Managing In-Person Exams When Necessary and Feasible When There is Concern About COVID-19 Exposure
VTC BENEFITS

- Increased diagnostic capacity
- Reduced wait times
- Easing travel stress
- Support team participation (teachers, Elders, probation officers)
- Comprehensive treatment plans
- Reduced costs (clinics and families)
• 2/3 of neuropsychologists using TeleNP by July 2020

Continued Issues
• Examinee internet connectivity (82.8%)
• Environmental distractions (78.2%)
• Unknown connectivity issues (58.6%)
• Examinee limited access to tech (57.5%)
• Audio clarity (55.2%)
• Lack of VTC familiarity (52.9%)
• Lack of easy admin visuocontructional tasks (52.9%)

(Fox-Fuller et al., 2020)
TECHNOLOGY

• Videoconferencing platform
• iPads/tablets
• Q-Interactive, etc.
• Screen-mirroring program
• 2 cameras
• Headphones
TROUBLE SHOOTING

• Have back up tests
• Provide step-by-step instructions before the meeting
• Test-run equipment with a pre-visit
• Ask examinee to have quiet room and a clean space
• Ensure an adult is available
• Ask examinee to use noise-cancelling headphones
• Augment audio with telephone if needed
• Confirm examinee can see each stimulus
• Practice!
FASD INTERDISCIPLINARY TEAM ASSESSMENT
1. Well-Child, Hearing, Vision
2. Psychologist Testing
3. Team Meeting
4. Speech-Language Pathologist
5. Occupational/Physical Therapy
6. Medical Interview
7. Team Meeting & Parent Feedback

TELEMED DX
PSYCHOLOGY

VTC
- IQ
- Most academics
- All language
- Social cognition
- Verbal and visual memory
- Questionnaires
- Parent interviews

In-Person
- Facial analysis photos
- Non-verbal IQ
- Processing speed
- Math (age dependent)
- Spelling (age dependent)
- Computerized tests of attention
- Executive functioning
SPEECH-LANGUAGE PATHOLOGY

VTC
• Feeding evaluation
• Core language
• Pragmatics
• Fluency
• Apraxia

In-Person
• Lower functioning
OCCUPATIONAL/PHYSICAL THERAPY

VTC
- PT – All screening & range of motion
- OT – All evaluation

In-Person
SATISFACTION

- Adults: 98% satisfaction rate for adults
  - 2/3 of older adults had no preference for in-person over VTC
- Youth: 94% of caregivers and 90% of examinees satisfaction rate

RESULTS

- WISC-V: 0.98-0.99
- CELF-4: 0.92-0.99
- WJ, DKEFS, CVLT, Beery VMI, Digit Span = no significant difference in test scores

(Parikh, et al., 2013)
TRAININGS

American Psychological Association
  • https://www.apa.org/ed/ce/telehealth

Inter Organizational Practice Committee
  • https://iopc.online/teleneuropsychology-training

National Academy of Neuropsychology

American Academy of Clinical Neuropsychology
THANK YOU

ejohnson@southcentralfoundation.com
REFERENCES


Small Group Discussion
(30 mins)

Breakout Rooms:
1. Writing the Report – Moderator: Dr. Erika Stannard (Recorded)
2. Rural access to FASD – Moderator: Dr. Erin Johnson
Small Group Discussion
(30 mins)

**Breakout Rooms:**
1. Assessing adults – Moderator: Dr. Jacquelin Bock
2. Novel tools for diagnosis and assessment – Moderator: Dr Sarah Mattson (Recorded)
Closing Statements