Neurodevelopmental Disorders: Implications for Support in Health Care and School Systems

Ellen F. Geib, M.S.
Clinical Psychology Pre-Doctoral Intern
Track: Neurodevelopmental/Autism
University of New Mexico
Center for Development and Disability
egeib@salud.unm.edu
Disclosure

• The presenter has no financial relationship to this program.
Objectives

1. Use the basic ASD and FASD intervention principles to provide families with appropriate recommendations.

2. Apply the basic outline of social story intervention for individuals with FASD and ASD.

3. Provide families and other clinicians with reliable, evidence-based sources for additional information regarding FASD and ASD.
1. Brief Review of Neurodevelopmental Disorders
2. Principles of Key Interventions
   A. Behavioral Analysis
   B. Social Stories
3. Resources and Additional Information
Neurodevelopmental Disorders

• Lifelong disabilities manifesting as core deficits across the following domains:
  – Physical/Motor
  – Development
  – Cognition
  – Behavior/Social/Emotion
  – Academic/Learning
Autism Spectrum Disorder (ASD)

- Autism spectrum disorder (ASD) is a neurodevelopmental disorder represented on a spectrum of severity with two core impairments: social communication and restricted/repetitive behavior.

<table>
<thead>
<tr>
<th>1. Social Communication Impairments (3)</th>
<th>2. Restricted/Repetitive Behaviors (&lt;2/4)</th>
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</thead>
<tbody>
<tr>
<td>(A) Social-emotional reciprocity</td>
<td>(A) Stereotyped or repetitive motor movements or speech</td>
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<tr>
<td>(B) Nonverbal communication</td>
<td>(B) Insistence on sameness</td>
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<tr>
<td>(C) Development/Maintenance of Social relationships</td>
<td>(C) Highly restricted, fixated interests</td>
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<td></td>
<td>(D) Unusual interest in sensory aspects of the environment</td>
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APA, 2013
Theoretical Underpinnings of ASD

• The hallmark of ASD is **social communication impairment**.
  - Lack of social motivation
  - Failure to find social stimuli rewarding
  - Impaired attention processing networks
Theoretical Underpinnings of ASD

1. Difficulty understanding others as independent agents of communication

2. Impaired “theory of mind,” or the ability to understand others in terms of their beliefs, desires, and intentions, and how these beliefs may differ from theirs.
Primary Goal for Treatment for ASD

- **GOAL** = Support children to attend and respond to social opportunities in their environment
Common Challenges for Children with ASD in Community Settings

• Communication (e.g., use of language, back and forth conversation, nonverbal communication, nonliteral language)
• Shifting attention
• Sensory processing and motor differences
• Emotion and behavioral regulation
Fetal Alcohol Spectrum Disorders

- Fetal Alcohol Syndrome (FAS) is a permanent birth defect syndrome caused by exposure to alcohol in utero
- Disorders across the spectrum are characterized by physical, cognitive, and behavioral deficits.

<table>
<thead>
<tr>
<th>Fetal Alcohol Spectrum Disorder (FASD)</th>
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<tbody>
<tr>
<td>Fetal Alcohol Syndrome (FAS)</td>
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<tr>
<td>Partial Fetal Alcohol Syndrome (PFAS)</td>
</tr>
<tr>
<td>Alcohol Related Neurodevelopmental Disorder (ARND)</td>
</tr>
<tr>
<td>Alcohol Related Birth Defects (ARBD)</td>
</tr>
</tbody>
</table>
Theoretical Underpinnings of FASD

• The hallmark to FASD is **damage to the central nervous system.**
  – Malformations and reductions of grey and white matter
  – Alterations in brain activation
  – Alterations in functional connectivity
Primary Goal for Treatment for FASD

- **GOAL** = Support and explicitly teach affect regulation and behavior management skills
Common Challenges for Children with FASD in Community Settings

- Hyperactivity, impulsivity, and attention difficulties
- Memory deficits
- Disruptiveness
- Poor social skills
- Difficulty understanding rules and authority
Principles of Key Interventions

• The main goal of interventions is to help individuals function more successfully in their environments

1. **Behavior analysis** = arrange environments to increase the likelihood of target behaviors and decrease the likelihood of problem behaviors

2. **Social Stories** = explicitly teach children the roles and expectations of their social environments
Why do these strategies work?

• **DIRECT**
  – Objective measurement of behavior
  – Explicitly teaches as the target behavior

• **STRUCTURED**
  – Use of procedures based on principles of behavior
  – Schedules of reinforcement

• **REPETITIVE**
  – Environment becomes a “controlled” variable
  – Teaching opportunities can occur numerous times in naturalistic, artificially created environments, or stories
Principles of Key Interventions

• Behavior Analysis:
  – There is a functional relationship between behavior and one more of its controlling variables:
    1. **Antecedent** = conditions or stimulus changes that occur prior to the behavior
    2. **Consequence** = changes that follow the behavior

• Assumption = Most behaviors are learned and maintained via consequences and antecedents
Principles of Key Interventions

1. Identify antecedent variables that can be altered to set up the learner for success
2. Identify reinforcement contingencies to be altered so that the problem behavior is no longer reinforced
3. Identify reinforcers to that the replacement behavior increases
Antecedent Interventions

• **Antecedent interventions:** environmental adjustments are made prior to the behavior in a way that allows the learner to engage in a target behavior and be successful.

• Interventions consist of:
  – Planning ahead
  – Using the child’s strengths
Antecedent Interventions

1. Maximize the likelihood of the behavior
   - For example, when a child eats a good breakfast, they are more likely to be focused at school
   - Lower the difficulty of a task as you are introducing a new skill

Set Table
Antecedent Interventions

2. Modify the environment
   – Create a routine
   – Is the classroom prepared for the child?

3. Increase prompts for desired behavior
   – More frequent reminders
   – Visual supports
Visual Schedule for a Dental Visit

1. Put hands on stomach
2. Feet out straight
3. Open mouth wide
4. Hold mouth open
5. Count teeth
6. Take X-Rays
7. Clean teeth
8. Spit into sink
Common Strengths for Individuals with Neurodevelopmental Disorders

- Responsiveness to direct, clear, and concise instructions
- Strong visual skills
- Ability to understand concrete concepts, rules, and patterns
- Intense concentration or focus, especially on a preferred activity
- Ability to learn problem solving skills
Behavioral Interventions

• **Behavioral interventions**: strategies to increase target behaviors and decrease problematic behaviors
  1. Positive Reinforcement
  2. Contingency Contract

• Positive Behavior Support is one example of behavioral interventions used in many school settings.
Positive Reinforcement

- Positive reinforcement – verbal praise, access to preferred item/activity given immediately after a target behavior occurs to increase that behavior.
Contingency Contract

• Contingency contracts = document that specifies the contingent relation between the completion of a specified behavior and access to a specified reward such as access to a favorite activity
Contingency Contracts

1. Description of the task
   • Who is doing the task?
   • What is the task?
   • When is the task completed?
   • How well should the task be completed to earn a reward?

2. Description of the reward and who gives the reward

3. Task record
   • Record the progress of the contract
   • Provision of interim rewards

1. FEEDING THE DOG
   • Martin will feed the dog
   • 1 scoop of dog food
   • Every morning at 7:00 am.
   • When Martin feeds the dog every morning he will get to choose a dessert for his lunch.

2. Brownie, rice crispy, candy from Dad

3. Task record
   • Dad will put a sticker on the calendar for each day Martin feeds the dog
   • When Martin feeds the dog every day for 1 week he gets to choose a movie to watch on Friday night.
Social Stories Interventions

• Building social skills involves the explicit teaching and reinforcement of desired, specific social skills:
  – Good communication (e.g., introducing oneself to others)
  – Awareness and expression of feelings
  – Making eye contact
  – Recognition of nonverbal communication
  – Politeness
  – Conversation skills
  – Handling teasing, conflicts, interpersonal problems
Social Stories Interventions

• A social story breaks down these social skills and often uses visual cues to help someone learn these skills.

• Social stories help individuals navigate nonverbal rules and social expectations.

• Interventions must be specific and ever changing based on the situation and child.
# Social Stories

<table>
<thead>
<tr>
<th>Sentence</th>
<th>What is it</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive</td>
<td>Answers the “wh” questions</td>
<td>Teachers ask questions.</td>
</tr>
<tr>
<td>Perspective</td>
<td>Refers to the opinions, feelings, ideas, or beliefs of others</td>
<td>Teachers like it when students raise their hands to answer questions. I feel angry when the teacher calls on someone else first.</td>
</tr>
<tr>
<td>Directive</td>
<td>Offers responses</td>
<td>When I am angry I can take three deep breaths, ask to go for a walk, etc.</td>
</tr>
<tr>
<td>Affirmative</td>
<td>Enhances the meaning of the previous sentence</td>
<td>It is important to stay safe when I become angry.</td>
</tr>
<tr>
<td>Control</td>
<td>Provide personal clarity</td>
<td>I can do this. I can calm down.</td>
</tr>
<tr>
<td>Support</td>
<td>Identifies how others can help</td>
<td>An adult can remind me to use my coping skills when I am angry.</td>
</tr>
</tbody>
</table>
Social Stories

**Being a Good Listener**

*by: Sasha Hallagan*

My friends are happy when I am a good listener.

Sometimes I forget to be a good listener and don’t pay attention.

Being a good listener means looking like I am listening. I sit facing towards my friend. I look at his face. I don’t look all around.

I nod my head while they are talking and say things like "okay" or "yeah." I ask questions about what they were talking about.

If I have good listening behavior, people will like talking to me more.
My name is John and I go to school everyday during the week. Sometimes there is a change in our schedule. I don’t like changes in our schedule. I wish I could go to school every day. When I do not understand I can ask my mom: “What are we doing today?” I can listen and do something different that day. It is important for kids to be flexible because sometimes we have appointments during the week. I can be flexible and do something different, and then the next day I can go to school. Mom will put my schedule on the fridge so I know what to expect for the day. Mom may remind me to look at the schedule when I am worrying about the schedule for the day.
## Intervention Summary for FASD and ASD

<table>
<thead>
<tr>
<th>Common Challenges</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Provide visual supports, limit language/keep language short and simple</td>
</tr>
<tr>
<td>Attention</td>
<td>Isolate the most relevant information, support attention, break down steps</td>
</tr>
<tr>
<td>Difficulty Understanding Social Cues</td>
<td>Teach in context, be explicit, teach components of social interactions (social stories)</td>
</tr>
<tr>
<td>Emotion and Behavior Regulation</td>
<td>Clear expectations, teach coping skills/replacement behaviors, praise positive behaviors</td>
</tr>
<tr>
<td>Difficulty with Time Management</td>
<td>Use timers, give extra time, give concrete instructions</td>
</tr>
<tr>
<td>Memory/Organizational Problems</td>
<td>Consistency and predictability, give plenty of time, use visual aids/organizers</td>
</tr>
<tr>
<td>Difficulties with Transitions</td>
<td>Routines, visual schedules, planned changes (predictable surprises)</td>
</tr>
</tbody>
</table>
School Resources: Toolkits

• Autism Speaks School Community Toolkit

• An Educator’s Guide to Asperger Syndrome

• American Academy of Pediatrics Toolkit

• FASD Tips and Strategies by Age
  http://come-over.to/FAS/PDF/TorontoStrategiesParents.pdf
Autism Speaks School Community Toolkit

• Info about Autism
• School Community
  – Peers/Classmates
  – Bus drivers
  – Custodial staff
  – Paraprofessionals
  – School Nurses
• Strategies to support communication, social interaction, positive behavior, organizational skills, sensory needs
American Academy of Pediatrics’ Fetal Alcohol Spectrum Disorders Toolkit

• About FASDs
• Identification, Diagnosis, and Referral
• Patient Management
• Practice Management
• Sample Forms (i.e., integrated care plan)
• In-Depth Provider Training
• Resources
Healthcare Resources: Toolkits

• NOFAS Toolkit for Treating Patients with FASDs

• Autism Speaks Dental Guide Toolkit
  – Skills to prepare your child
  – Visual schedule
  – Handout for the dentist
  – Additional dental forms
Resources: Handouts

• FASD Handout for School Systems

• Autism Basics Brochure

• Asperger’s Syndrome Basics
  https://www.autismspeaks.org/sites/default/files/docs/asperger_syndrome_basics_handout.pdf
FASD Handout for School Systems

National Organization on Fetal Alcohol Syndrome
Educating the public, professionals, and policymakers about alcohol use during pregnancy

FASD: What School Systems Should Know About Affected Students

Students with Fetal Alcohol Spectrum Disorders (FASD) have special learning needs and face a wide range of behavioral challenges.

**Characteristic Facial Features of a Child with FASD**
- Small head
- Low nasal bridge
- Epicantal folds
- Small eye openings
- Flat midface
- Underdeveloped jaw

**How does FASD affect learning and behavior?**
Students with FASD have problems receiving and processing information. They often cannot store what they learn or lack the mental capacity to use new information they have been given.

While students with FASD have IQ scores that range from 29 to 140, their overall level of adaptive functioning (i.e., ability to perform daily life skills) is often much lower than would be expected.

(Teresa Kelleman)

**Educators can play a critical role in determining whether children with FASD reach their maximum potential.**

Common challenges for educators who teach students with FASD include:
- Hyperactivity, impulsivity, attention and memory deficits
- Inability to complete tasks, disruptions
- Poor social skills
- Need for constant supervision
- Disregard for rules and authority

Successful strategies for educating children with FASD include:
- Using concrete, hands-on learning methods
- Establishing structured routines
- Keeping instructions short and simple
- Providing consistent and specific directions
- Repeating tasks again and again
- Providing constant supervision

According to the Substance Abuse and Mental Health Services Administration, FASD affects 1 in 100 live births.

Recognizing FASD can be a challenging task.

Most students with FASD are unidentified or misdiagnosed as most people with FASD do not have the characteristic features associated with fetal alcohol syndrome. The majority of students with FASD are not significantly developmentally disabled, and they can be articulate and skilled at performing specific tasks.

Students who exhibit behavior or learning problems may require psychoeducational testing to identify possible presence of central nervous system damage.

For more information on FASD, go to www.nofas.org

1200 Eton Court, NW, Third Floor • Washington, DC 20007 • (202) 735-4889 • info@nofas.org • www.nofas.org

Additional Resources

- Skillstreaming – to increase pro-social skills
  http://www.skillstreaming.com /
- Model Me Kids: Videos for Modeling Social Skills
  www.modelmekids.com
- Carol Gray Social Stories
  http://carolgraysocialstories.com/
- FRIEND (Fostering Relationships in Early Network Development) Program
  www.autismcenter.org
- Wrightslaw: From Emotions to Advocacy
  www.wrightslaw.com
Questions
Ellen F. Geib, M.S.
Clinical Psychology Pre-Doctoral Intern
Track: Neurodevelopmental/Autism
University of New Mexico
Center for Development and Disability
egeib@salud.unm.edu