### DIAGNOSIS of AUTISM SPECTRUM DISORDER

- **A** - Social (Meet all 3)
  - Developing & maintaining relationships
  - Social-emotional reciprocity
  - Non-verbal communication cues

- **B** - Behavioral (Meet 2 of 4)
  - Repetitive Speech or behavior
  - Need for sameness
  - Restricted interests
  - Atypical Sensory Responses

- **C, D, & E**
  - **C** - Symptoms present in early development
  - **D** - Symptoms impair social, occupational functioning
  - **E** - Not explained by IDD

### SEVERITY

- **Level 1.** Requiring support. Low interest/success socially, inflexibility
- **Level 2.** Requiring substantial support. Marked social delays. Distress with change
- **Level 3.** Requiring very substantial support. Severe social deficits, extreme inflexibility

### SPECIFIERS

- Language issue | IDD
- Medical/ genetic condition
- Catatonia | Other psych

### RISK FACTORS

- Advanced parental age
- Premature birth
- Perinatal complications
- Maternal immune dx
- Metabolic dx
- Maternal infections
- Family history & genetics

### STATS

- Prevalence: 1 / 36
- 4M:1F
- 50% have avg or higher IQ
- 25% minimally verbal

### CLINICIAN

- ADOS (1y+)
- ADI-R (1.5y+)
- STAT (2-6)
- CSBS (.5-2y)

### PARENT

- ASQ
- MCHAT (1-3y)
- CARAS-2 (2y+)
- GARS-2 (3-22y)
- SCQ (4y+)

### Neurodevelopmental Clinical Pearls

Created by the AACAP Autism and Intellectual Disability Committee’s Training and Education Workgroup. See website for sources and more details!

### DIAGNOSIS of INTELLIGENT DEVELOPMENTAL DISORDER (IDD)

Must meet DSM-5-TR criteria A, B, & C:

- **A** - Deficit in intellectual function: reasoning, problem solving, planning, abstract thinking, executive function – assessed via standardized evaluation.

- **B** - Deficit in 3 domains of adaptive function

  - **Academic**
    - Memory, language, reading, writing, math;
    - Use of knowledge in novel situations;
    - Problem solving
  - **Social**
    - Awareness of other’s thoughts and feelings;
    - Communication skills;
    - Social judgment
  - **Practical**
    - Self-management with ADLs, money, behavior, job responsibilities

- **C** - Onset during developmental period
  - Severity: Mild, Moderate, Severe, or Profound based on level of adaptive functioning

### Risk Factors

- **Prenatal**
  - Genetic, chromosomal, malformations, growth errors; maternal infections, illness, malnutrition; teratogens, toxins

- **Perinatal**
  - Delivery complications; infections

- **Postnatal**
  - Trauma, infections, toxins, medical conditions, environment, abuse/neglect

- **Unknown**
  - Most common cause of IDD

### Prevalence

- 1-3% worldwide
  - Most common inherited cause is Fragile X
  - #1 chromosomal cause is trisomy 21

### NEURODEVELOPMENTAL WORK-UP

**As part of initial evaluation...**

<table>
<thead>
<tr>
<th>History</th>
<th>Evaluate</th>
<th>Review Labs</th>
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<tr>
<td>Family History</td>
<td>Hearing/Vision Tests</td>
<td>Newborn Screen</td>
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<tr>
<td>Prenatal/Birth</td>
<td>Physical exam: include neuro &amp; congenital exams</td>
<td>BMP, CBC, LFT, TSH</td>
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<td>Developmental</td>
<td>Psychiatric eval</td>
<td>Lead, Metabolic</td>
</tr>
<tr>
<td>Medical</td>
<td>Behavioral eval</td>
<td>Genetic testing</td>
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**Further workup:**

- Evaluate baseline vs current and expected developmental age

- Consider Neuro or Genetics Consult

**Test for specific genetic syndrome (PCR)**

- **Suspected syndrome?**
  - **Yes**
  - **No**

- Ordering Genetic Testing
  - Refer to medical genetics
  - or:
  - Pre-test genetic counseling
  - Insurance prior auth

- **Interpreting Genetic Testing Results**
  - No results
  - Variant of Unknown Significance (VUS)
  - Known pathogenic variant

- Test unaffected parents to interpret VUS (novel = more likely pathogenic)

- Unresolved Clinical findings?
  - **Yes**
  - **No**

- Molecular Genetic
  - Pathogenic

- Consider additional testing: Karyotyping
  - Whole Genome Seq (WGS)
  - Mitochondria (mtDNA)
  - Methylation/Imprinting

- Post-test genetic counseling, Collaboration with care providers
**BEHAVIORAL INTERVENTIONS**

**Effective Use of Therapy**
- Establish and prioritize target of therapy
- Therapy first, then medication (if feasible)
- Clarify function & motivation for behavior

**INTERVENTIONS**

**APPLIED BEHAVIORAL ANALYSIS (ABA)**
Most evidence-based approach
Review antecedents, behaviors, consequences
Apply reinforcers

**EARLY INTERVENTIONS**
Early Intensive Behavioral Intervention (EIB)
Early Start Denver Model (ESDM)

**PLAY-BASED THERAPIES**
Pivotal Response Training (PRT)
Joint Attention Symbolic Play Engagement Regulation (JASPER)

**SKILL-BASED PROGRAMS**
Treatment & Education of Autistic and Related Communication Handicapped Children (TEACH)
Social Skills Training (SST)
Modified Cognitive Behavioral Therapy (CBT)

**PARENT TRAINING PROGRAM**
Research Units in Behavioral Interventions (RUBI)
Stepping Stones Triple P

**EARLY INTERVENTIONS**

**Special needs**
Psychiatric & Medical

**Function**
Include:
- Medical
- Early Start Denver Model (ESDM)
- Pivotal Response Training (PRT)
- Medication choices are often guided by data in the community

**PHARMACOLOGIC TREATMENTS**

**The Basics**
- No medication can treat core autism symptoms
- Medications are used to treat psychiatric and behavioral comorbidity but could also worsen behavior
- Rule out medical/environmental/psychosocial causes of behavior first
- Assess for DSM-5-TR disorders (e.g. ADHD, anxiety)

FDA approved medications in autism – risperidone and aripiprazole for the treatment of irritability
- Some data on other medications (e.g. stimulants, alpha agonists). Less data on SSRIs and other meds.
- Medication choices are often guided by data in typically developing children.
- To minimize side effects → start low and go slow
- Increased sensitivity to side effects. Monitor closely, e.g. vitals bloodwork, EKG, weight, movements, etc.

**Hyperactivity, Impulsivity, Inattention, Irritability**

**Stimulants**
- Methylphenidate immediate release – initial small trial dose (2.5mg), titrate as tolerated. Can try other stimulants.
- Higher risk of side effects, e.g., mood lability, anxiety, movements

**Non-Stimulants**
- Guanfacine/clonidine for those with co-occurring tics, anxiety, aggression
- Consider atomoxetine

**Irritability, Aggression, Self-Injury (SIB)**

**Dopamine blockers**
- Risperidone/ aripiprazole if severe
- Less data on other dopamine blockers; try carefully

**Anxiety, OCD, Depression**

**SSRI SNRI**
- Titrate slowly. High risk of activation (i.e., worsening behaviors)

**AGITATION/BEHAVIORAL ESCALATION**

**Step 1: NON-PHARMACOLOGY**

- Assess pain, hunger, physical needs
- Establish routines via verbal and visual communication tools (e.g., schedule boards, social stories)
- Offer preferred items & sensory stimuli
- Reduce demands

**Step 2: PHARMACOLOGY**

- Identify calming spaces
- Maintain sleep hygiene
- Contact mental health providers including behavioral specialist
- Know about local ED, inpatient psych units, resources
- Support parents

**Tips**
- Ask about prior medication responses, such as to benzodiazepines/diphenhydramine, which can cause disinhibition.
- Consider extra dose/early dose of pt’s regular meds
- Assess for drug interactions and side effects
- Advise parents to take prn medications to appointments and when in the community.

**INDIVIDUAL**
- Core symptoms
- Adaptive Function
- Psychiatric & medical comorbidity
- Special needs
- Interests & strengths

**TEAM**
- Family
- Case Manager
- School Team
- Medical providers
- Therapy providers
- Community agencies

**SUPPORTS**
- School
- Vocational Training
- Supported employment
- Medical care
- Guardianship
- Housing assistance

**Sleep**
- Primary sleep problems are common
- Consider sleep hygiene, melatonin, trazodone, clonidine