

PSYCHOPHARMACOLOGY

AUTISM

PSYCHOPHARMACOLOGY MODULE 3

Psychopharmacology and Autism

May 12, 2021

MODULE 3

Presenters:

Dr. Ronald T. Brown, PhD

Dr. Deborah P. Coehlo, PhD, C-PNP, PMHS, CFLE

Panelist: Manya Ralkowski, EdS, BCBA/LBA



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- ☐ This Self- study Online Webinar was created in conjunction with Dr. Deborah P. Coehlo, PhD, C-PNP, PMHS, CFLE; Dr. Ronald T Brown, PhD and Manya Ralkowski, EdS, BCBA. Funding to develop and deliver this webinar was provided by Special Learning Global Solutions.
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Subject Matter Expert: **Deborah P. Coehlo, PhD, C-PNP, PMHS, CFLE**

Founder and Director Juniper Pediatrics

Dr. Debbie Coehlo is a certified Pediatric Nurse Practitioner and Pediatric Mental Health Specialist with a Doctoral Degree in Family Sciences and Human Development. She is the Founder and Director of Juniper Pediatrics, a clinic modeled after John F. Kennedy's multidisciplinary system of care. Using a holistic, integrated care model, Juniper provides counseling, medication management and family therapy for children with ASD, ADHD and other childhood mental health disorders.

Dr. Coehlo completed her Master's in Nursing with a specialty in parent- child nursing. She spent 10 years working at the Child Development Center at the University of Washington in the Genetics Clinic and Multidisciplinary Clinic. In 1999, she completed her Doctorate Degree in Human Development and Family Studies.

She continues to teach at the undergraduate and graduate level and had pursued research in the area of social networking, transitioning to out of home care for families, and child development.

Dr. Coehlo is a co- editor for the 4th and 5th edition of Family Health Nursing (F.A. Davis, 2010/2013) and has published several journal articles in the areas of families choosing residential care, families in transition, family health nursing, and care of children with special health care needs.



Subject Matter Expert: **Dr. Ronald Brown, PhD**

Professor and Dean School of Allied Health Sciences University of Nevada

Dr. Ronald Brown, a noted expert on the topic of ADHD has served as the Associate Vice-Chancellor for Academic (Health Affairs) at the University of North Texas System.

Dr. Brown completed his Ph.D. from Georgia State University and has been the past President of the Society of Pediatric Psychology and the Association of Psychologists of Academic Health Centers.

He is a board-certified clinical health psychologist and has been an active clinician, teacher, advocate and investigator. He served as a member of the Behavioral Medicine study section of the NIH and chaired several special panels at NIH. He currently serves as the Editor of Professional Psychology: Research and Practice.

Dr. Ronald Brown's area of specialization includes behavioral sciences, pediatric psychology, attention deficit disorders, neuropsychology, psychopharmacology, learning disabilities and psychosocial oncology.



Panelist: **Manya C. Ralkowski, EdS, BCBA, LBA**

Instructional Leadership – Curriculum Specialist Board Certified Behavior Analyst, Licensed Behavior Analyst

Ms. Manya Ralkowski has been practicing in the field of applied behavior analysis for over 25 years. Her training began under direct education and training from consultants from the Lovaas Clinic in Los Angeles while completing her bachelor of arts in Communication Disorders with endorsements in special education and psychology at Western Washington University. Ms. Ralkowski continued her education and training with a master's degree in Education from Lesley University and a graduate certificate in Applied Behavior Analysis from the University of Washington while working as an assistant teacher on the Project DATA grant at the Haring Center-Professional Training Unit. She also possesses a doctorate degree in Instructional Leadership.

Her extensive educational and clinical background has afforded her many opportunities to build programs where there were none. Ms. Ralkowski has brought many programs and change to the PNW as a Design Team member for Seattle Public Schools creating the first STEM school for the district, a district consultant creating and replicating inclusion programs across the region, and most recently a Clinical Director, starting up a school and home-based ABA program serving 10+ districts and over 20 communities regionally.

Since 1994, Ms. Ralkowski has been creating and designing ABA programs and educational services from San Diego up the coast and into BC, Canada. She has been trained in many ABA based methodologies including PRT, DTT, NET, Verbal Behavior, Precision Teaching, PECS, and naturalistic ABA. She brings together disciplines such as ABA, special education, speech pathology, psychology, and remedial reading instruction for a comprehensive program for each student, each family, each teacher, and each school to create stronger and more inclusive communities.



LEARNER OBJECTIVES

1. Recognize specific target behaviors associated with Autism for which psychopharmacology is effective.
2. Identify classes of psychotropic agents which have demonstrated effectiveness in the treatment of Autism and related co-morbidities.
3. Understand common medications used in the treatment of Autism, including the indication, mechanism of action, adverse and side effects, and monitoring criteria.
4. Explore and discuss the most effective behavior strategies that are seen throughout various developmental stages of treatment for Autism.
5. Discuss benefits to starting with behavioral approaches versus medication during the treatment of Autism.
6. Apply knowledge to specific case studies including assessment, diagnosis, treatment, and evaluation of outcomes.
7. Identify skills required to approach parents about the potential benefits of psychotropic medication for their children, goals of medication, and reasons for adjustments and changes across time.
8. Discuss and analyze ethical dilemmas facing professionals and parents when treating Autism.

DOWNLOADABLE TOOLS

To access the downloadable tools, go to: <https://www.psychopharmacologytrainings.com/resources>

1. [Summary of Advances in Autism Spectrum Disorder Research](#)
2. [Parent Interview Form and Checklist](#)
3. [Handout on the difference between medical and educational diagnosis for Autism](#)
4. [Planning and Sequencing – Behavior Management](#)
5. [Behavior Management - Responding to directions](#)
6. [Joint Attention - Maintaining Another Person's Attention in Play and Conversation](#)
7. [Learning to accept No for an answer](#)
8. [Functional Behavior Assessment Structured Interview](#)
9. [ABA Chart Data Sheet](#)
10. [ABC Data for Behaviors of Concern](#)
11. Reading And Life Success: Reading And Life Success: One of the least expected predictors of life success is one's reading ability in primary school: https://www.huffingtonpost.ca/jerry-diakiw/reading-and-life-success_b_16404148.html
12. M-CHAT-R/F Screening Tool for Toddlers: www.mchatscreen.com
13. CARS: <https://www.carautismroadmap.org/childhood-autism-rating-scale/>

Case Study: Ben

Demographics, background and environments:

- 4-year-old male diagnosed with ASD-moderate at age 2.6 years
- Currently lives with biological parents; mother stays at home and is taking 1-2 college courses per term
- Rural community
- Family stress includes father working out of town and relatives living out of state

Education planning and teaming:

- ***Individual challenges*** – Speech development has progressed from no words at age 3 to approximately 50 words and 3- word combinations. Poor eye contact. Developmental delays in social interaction, emotional regulation, communication, and motor skills. Behavioral problems include hyperactivity, poor attention, and refusal to eat most foods. Sensory sensitivity to noises and oral stimulation.
- ***Classroom challenges*** - Roaming the room, poor attention to tasks, very little interaction with others, attends to I-PAD excessively.
- ***Behavior Interventions*** – Environmental changes, ABA therapy started at age 3 years at center and at home, parenting counseling, visual token chart, visual daily schedule, speech therapy, early intervention services.
- ***Recommendations from IEP team*** – Behavior analyst (along with IFSP team) recommended medical consultation.
- ***Individual successes*** – Language increasing almost daily, increased interaction with adults and one other peer, improved eye contact and mutual (shared) gaze, cognitive and daily living skills (i.e., feeding, toileting, and dressing) at age level.
- ***Classroom community*** – Building trust and developing peer relationships and friendships, group participation, classroom community improvements, improved relationship with parents.

CONCLUSION AND OUTCOMES

Diagnosis

- Medical history and physical
- CARS (Child Autism Rating Scale) 2nd Edition Assessment Tool
- Battelle Developmental Assessment
- Home visit with observation of behaviors and assessment of parenting and the environment
- Consultation with childcare provider
- DSM 5: Communication and social delay, repetitive patterns and speech, low frustration tolerance, poor attention and focus, hyperactivity, global developmental delays in all areas except gross motor skills

Treatment Plan

- ABA therapy 20 hours per week
- Speech therapy 2 hours per week
- Occupational therapy 2 hours per week
- Early Intervention 5 hours per week
- Parent counseling and support 1 hour every week
- Medical consultation once per month

Medication used

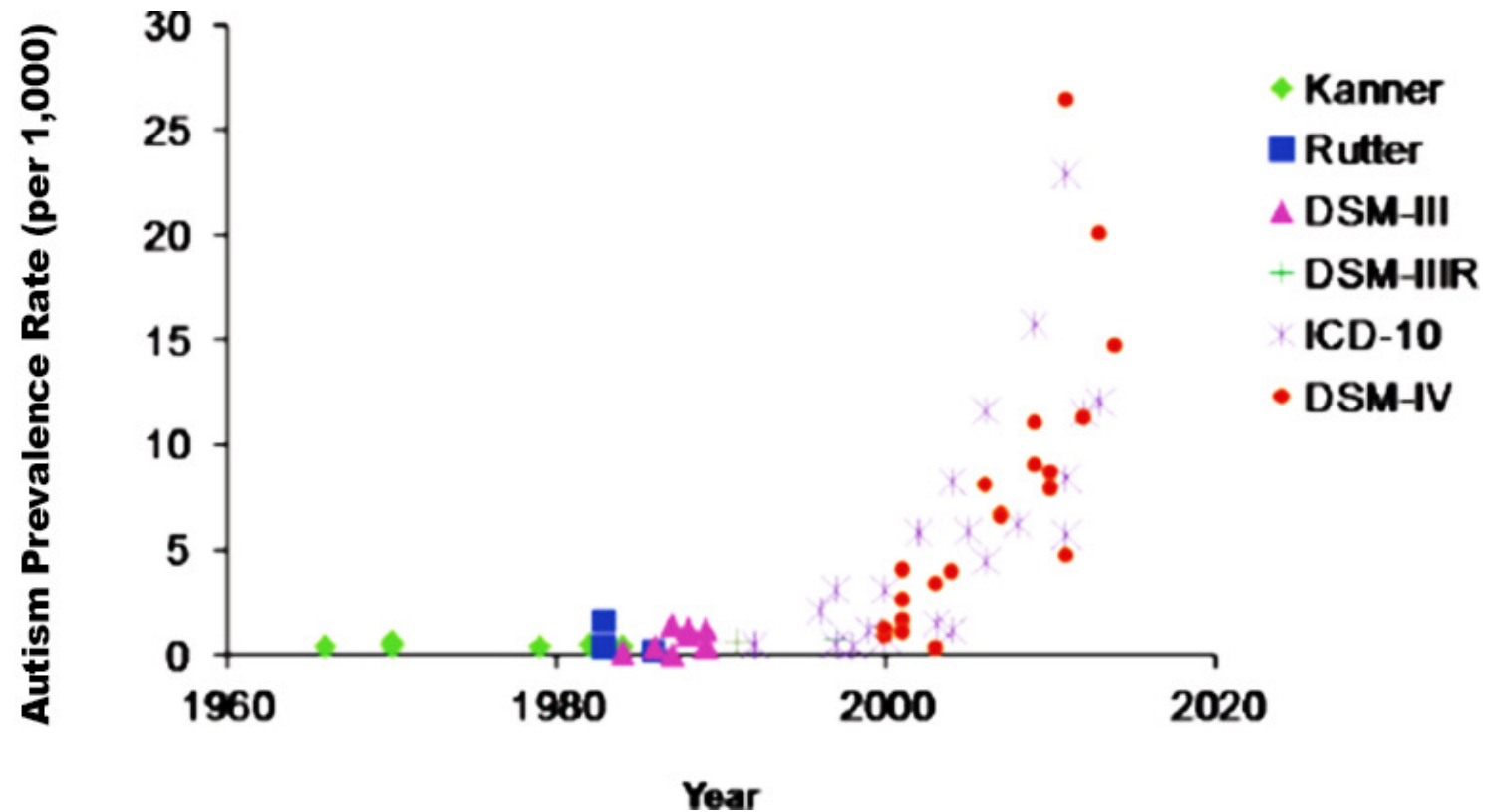
Efficacy

- No medications used at this time. Supplements: Omega 3 1200 mg per day, Multivitamin; Vitamin D3 1000 IU per day

Outcomes

- Improved speech, daily living skills, cognitive, social, motor development, parent support, attention and focus.

ASD Growth Across Time

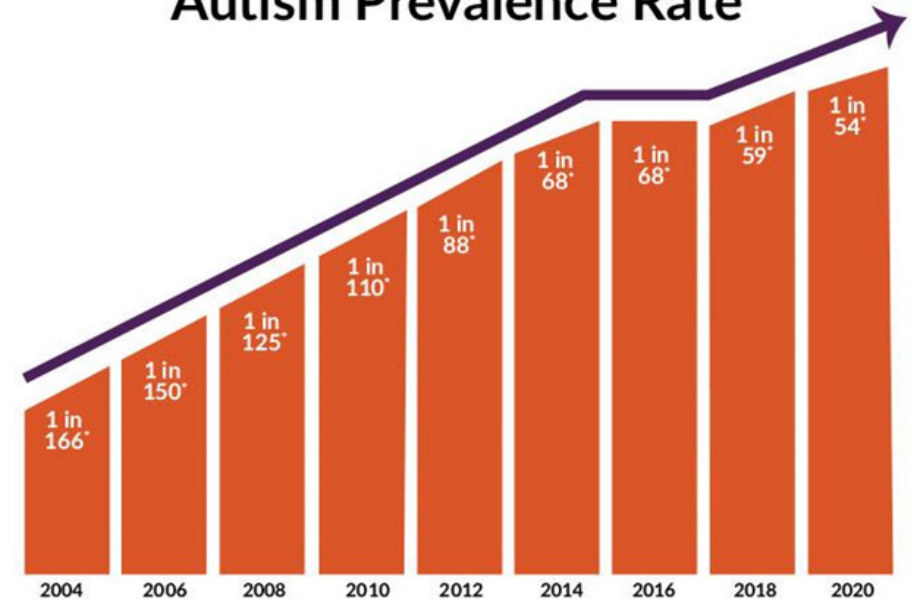


Committee to Evaluate the Supplemental Security Income Disability Program for Children with Mental Disorders; Board on the Health of Select Populations; Board on Children, Youth, and Families; Institute of Medicine; Division of Behavioral and Social Sciences and Education; The National Academies of Sciences, Engineering, and Medicine; Boat TF, Wu JT, editors. Mental Disorders and Disabilities Among Low-Income Children. Washington (DC): National Academies Press (US); 2015 Oct 28. 14, Prevalence of Autism Spectrum Disorder. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK332896/>

ASD Growth Today

- ❑ 1:54 children in the United States are diagnosed with ASD (incidence continues to grow over the last 20 years)
 - More common in boys than girls
 - A growth from 2-4 cases per 10,000 children in 1970's
- ❑ 40% of children with ASD are non-verbal
 - 25% of these children have up to 10 words by 18 months of age, but then lose these words
- ❑ ASD is the fastest growing developmental disorder
- ❑ Early intervention continues to prove to be beneficial to the long-term outcome of children with ASD

**Through the Years:
Autism Prevalence Rate**



*Centers for Disease Control (CDC) prevalence estimates are for 4 years prior to the report data. i.e 2020 figures are from 2016.

FINDINGS AND RECOMMENDATIONS

- ASD is considered a chronic condition and should be approached as such.
- The evidence supports the use of **medications to treat comorbid diagnoses, including ADHD, Aggressive Behaviors, Obsessive Compulsive disorder, anxiety, and Intermittent Explosive Disorder.**
- **Behavior therapy** with medications improves functioning of children with ASD.
- **Comparison between medications** shows only modest differences between medication and placebo, with stronger differences with smaller group size or case studies (Level C-D) (there is no consistent profile of ASD that guides medication treatment).

Aggregate Evidence Quality	Benefit or Harm Predominates	Benefit and Harm Enhanced
Level A Intervention: well-designed and conducted trials, meta-analyses on applicable populations Diagnosis: independent gold standard studies of applicable populations	Strong recommendation	Weak recommendation (based on balance of benefit and harm)
Level B Trials or diagnostic studies with minor limitations; consistent findings from multiple observational studies	Moderate recommendation	
Level C Single or few observational studies or multiple studies with inconsistent findings or major limitations.	Weak recommendation (based on low-quality evidence)	
Level D Expert opinion, case reports, reasoning from first principles		No recommendation may be made.
Level X Exceptional situations in which validating studies cannot be performed, and there is a clear preponderance of benefit or harm	Strong recommendation Moderate recommendation	

Assessment: Medical Diagnosis

- ☐ Interview with parents
- ☐ History of symptoms
 - Environmental factors
 - Risk factors
 - Genetics/ Prenatal/ Natal
- ☐ Physical Examination/Labs/Chromosomal Testing
- ☐ Developmental Screening (M-CHAT-R/F) (18-24+ months)
- ☐ Developmental and Behavioral Assessment
 - Autism Diagnostic Observation Schedule-2 (ADOS-2) (1 year through adults)
 - Children's Autism Rating Scale (CARS) (Age 2-6, or IQ <79).
- ☐ Cognitive Testing
- ☐ Motor Testing
- ☐ Speech evaluation
- ☐ Functional Testing
 - Academic
 - Social
 - Environmental
 - Health



ASD Journeys: Amelia's Story

- At birth, Amelia was tested positive for methamphetamine addiction – the birth mother was using drugs during pregnancy.
- At 2 months old, Amelia was adopted by the same family who adopted her older brother.

Challenging Behaviors:

- Aggressive towards her adopted parents and her brother
- Impulsivity – she would elope into the busy street, at risk for being hit by a car – going for walks with dog were her favorite thing to do but it was not safe. She also had a tendency to scream, yell, blurt out cuss words, name calling, etc.
- Property Destruction – She had tendencies to destroy her surroundings. Her bedroom consisted of a mattress on the floor, padded walls, no toys due to the severity of her explosive escalations. She was not safe in the car, she would get out of her car seat and beat on the driver, she would
- Escalations would occur as much as 5 times an hour on a daily basis

Family dynamics:

- Parents were childhood sweethearts and grew up together, almost got a divorce
- Older brother was scared of her and started fighting back, parents would allow it for his own protection
- Family is in crisis, depressed
- Almost rescinded the adoption

Crisis Response Intervention:

- At age 6, she was placed in long term residential placement in Child Study and Treatment Center (CSTC-DOH) where she received the Autism diagnosis.
- Initially, it took 7-8 adults to manage her escalations. After 24 months of intensive residential support and medical consults, she was released back into the home with wrap around services at age 8 and has been home for about 3 months.

Wrap Services:

- Family counseling
- ABA home program targeting emotion regulation, self management and advocacy, executive function
- Medication management: Taking Risperidone
- All day, every day in person school at the CHILD School (Children's Institute for Learning Differences), an out of district placement option for students who are unable to attend public school. Her education program at CHILD focuses on self-regulation, coping skills, resilience, and relationship building.

Child outcomes:

- Escalations have gone from 5 times an hour to maybe 1 time a week.
- She can access her education and home program, ability to manage impulsivity, respond to demands positively.
- Family is in intensive repair counseling.



CAUSES OF ASD:

Neurodevelopmental syndrome causing a disruption of key biological pathways

- ☐ Genetic (10-20%)
- ☐ Environmental risks
- ☐ Prenatal complications
- ☐ Trauma
- ☐ Chaotic environment
- ☐ Prenatal diet
- ☐ Toxins (i.e., lead, molds)
- ☐ Parental drug use / smoking / medications
- ☐ Low birth rate
- ☐ Prematurity

☐ **Largely unknown**

☐ **Up to 80% of ASD attributed to genetics**

Identifying ASD

- ❑ 75% of preschool aged children with ASD are non-verbal or have significant speech delays

- ❑ 33% of young adults with ASD continue to have language delays
 - Expressive communication, non-verbal cognition, joint attention, and motor skills can help predict future language development
 - Delay in fine motor skills at age 3 years was the strongest predictor of future language development (Ball, et. al., 2019)

DSM-5, 2013

RESEARCH ON UNIVERSAL SCREENING

- ❑ 23,643 children screened between the ages of 16-24 months, with follow-up at age 4 years.
 - Screened using the MCHAT- R/F
 - 50.4% received follow-up screening
 - 9.5% screened positive at the first screening, and 6.2% screened positive at the follow-up screening.
 - This process of screening only identified 38.8% of children who were later confirmed to have ASD.
- False positive rate was 14.6% (only 14.6% of the children identified as having ASD at 1st screening were later diagnosed with ASD).
- Those diagnosed at 14 months were unlikely to be typically developing later in life.
- Repeated screenings were more accurate.
- Early intervention was a benefit to all identified.

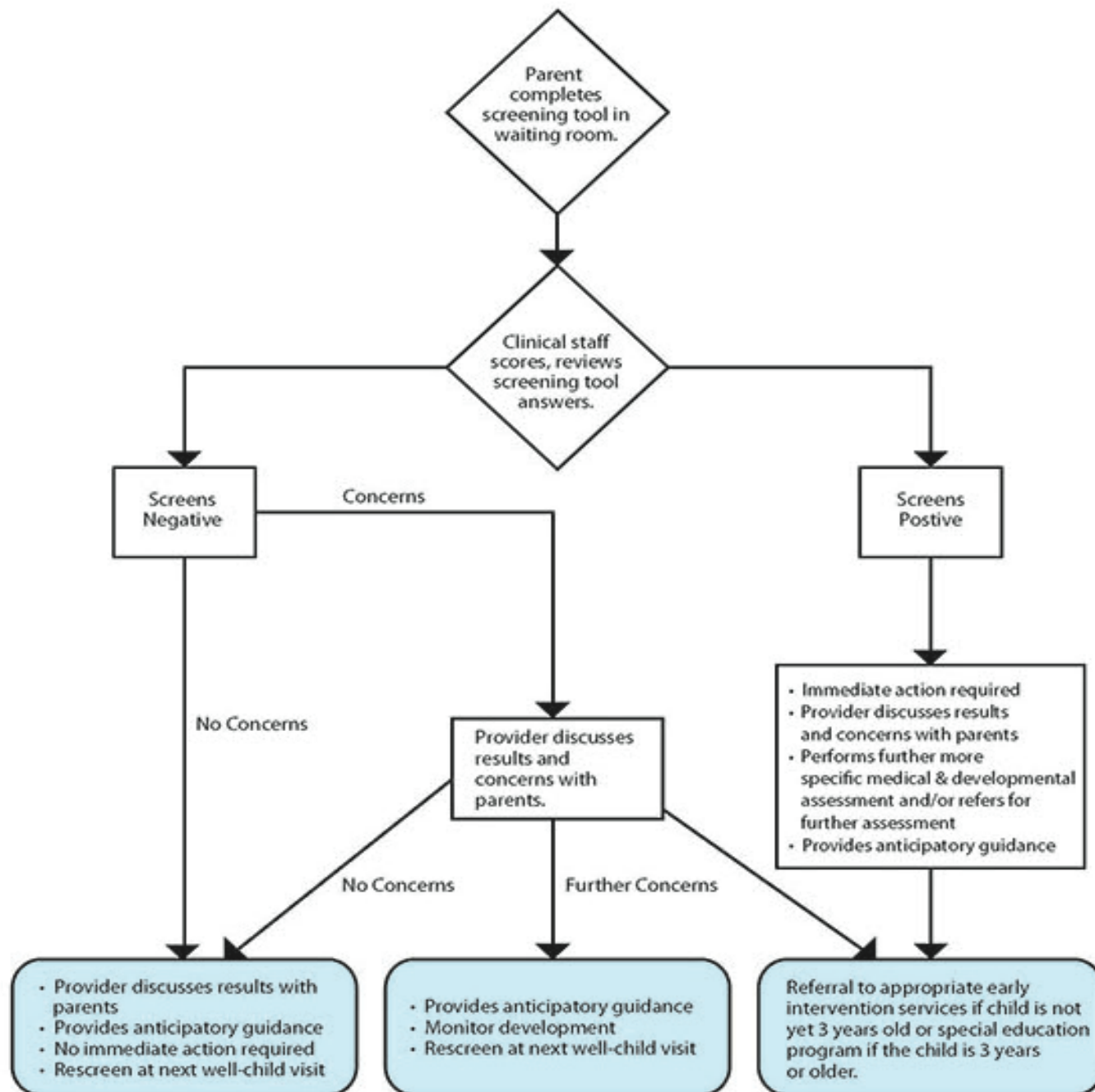


Guthrie W, Wallis K, Bennett A, Brooks E, Dudley J, Gerdes M, Pandey J, Levy SE, Schultz RT, Miller JS. *Pediatrics*. 2019 Oct;144(4). pii: e20183963. [PMID: 31562252] ; Pierce K, Gazestani VH, Bacon E, Barnes CC, Cha D, Nalabolu S, Lopez L, Moore A, Pence-Stophaeros S, Courchesne E. *JAMA Pediatr*. 2019 Jun 1;173(6):578-587. [PMID: 31034004]

PEDIATRIC SCREENING FLOW CHART



(CDC, 2021; AAP, 2019)



Diagnostic Criteria and Target Symptoms (DSM -5)

Category A

- Significant deficits in social interaction and social communication
- Lack of reciprocity
- Deficits in non-verbal communication
- Deficits in initiating, maintaining, and understanding relationships

Category B

- Restricted and repetitive patterns
- Repetitive movements (lining up cars, flapping, echolalia)
- Insistence on sameness
- Restricted and fixated interests
- Unusual interest in sensory input (smelling or tasting objects)

Category C

- Symptoms must be present in early childhood development.
- Symptoms have to cause significant impairment in social, occupational, or other areas of functioning.

DSM-5, 2013

TYPES OF ASD

- ❑ Mild: Level 1 Requiring support
- ❑ Moderate: Level 2 Requiring substantial support
- ❑ Severe: Level 3 Requiring very substantial support
- ❑ Specify:
 - With or without intellectual disability
 - With or without language impairment
 - Associated genetic, medical, or environmental factor(s)
 - With Catatonia

(DSM-5, 2013)



Diagnosis of Autism by Age

- ❑ Most children show symptoms of ASD by age 2 years
- ❑ Most children are still not diagnosed until age 4 years or later
- ❑ The more severe the symptoms, the earlier the diagnosis
- ❑ Research shows that all children with ASD benefit from early intervention.
- ❑ Universal screening is controversial (data underrepresents children of color and children from low-income groups).

- ❑ More missed diagnoses in:
 - Children of color
 - No intellectual disability
 - First developmental concern after three years
 - Co-occurring conditions
 - Lack of developmental screening/evaluation until after age 3 years

(Interagency Autism Coordinating Committee, 2019)

Wiggins LD, Durkin M, Esler A, Lee LC, Zahorodny W, Rice C, Yeargin-Allsopp M, Dowling NF, Hall-Lande J, Morrier MJ, Christensen D, Shenouda J, Baio J. *Autism Res.* 2020 Mar;13(3):464-473. [PMID: 31868321]

DIFFERENTIAL DIAGNOSIS

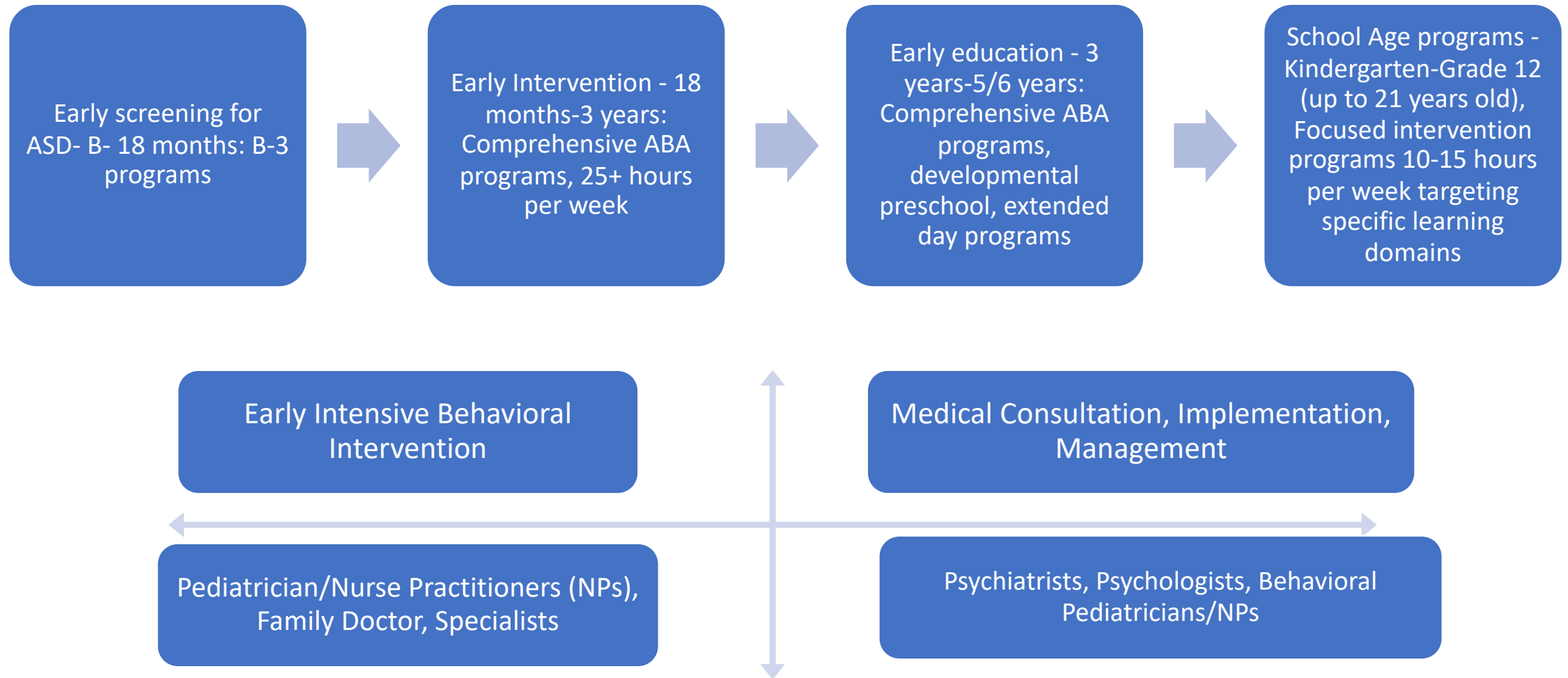
- ☐ Fragile X Syndrome
- ☐ Other Chromosomal abnormalities or syndromes
- ☐ Developmental delays
- ☐ Attention Deficit Disorder with Hyperactivity and Impulsivity
- ☐ Specific learning disorders: Narrow area of inattention
- ☐ Intellectual disabilities: Symptoms appropriate for a younger developmental age.
- ☐ Hearing Impairments
- ☐ Other speech impairments
- ☐ **Reactive attachment disorder:** Poor social skills and lack of friendships, but no other symptoms of ASD
- ☐ **Anxiety disorders:** Excessive worry but no repetitive behaviors
- ☐ **Depressive disorders:** Symptoms of poor social skills related to low mood rather than ASD
- ☐ **Other mood disorders:** Mood disorder with ASD episodic and intense and limited rather than classic bipolar
- ☐ **Medication side effects:** Psychotropic medications impacting social skills and behavior
- ☐ **Environmental neglect:** Loss of social skills, interaction skills, and communication skills. Usually, global delays and poor growth

CONCURRENT DIAGNOSES

- ☐ Anxiety
- ☐ Attention Deficit Disorder and Hyperactivity/Impulsivity
- ☐ Mood disorder
- ☐ Intermittent Explosive disorder
- ☐ Obsessive-compulsive disorder
- ☐ Communication impairment
- ☐ Developmental delays
- ☐ Pica and other eating disorders



ASD Journey Across Time



TREATMENT OPTIONS: MEDICATION

- ☐ 56% of children diagnosed with ASD are taking one or more medications
- ☐ Appropriate evaluation and diagnosis
- ☐ Appropriate medications
 - Category
 - Dose
 - Side effects
 - Interactions
- ☐ Used to treat target symptoms or concurrent diagnosis:
- ☐ Do not change the ASD diagnosis (no cure)
- ☐ Most effective when combined with other strategies



MEDICATION TREATMENT FOR AUTISM

- ❑ The FDA has approved the use of some antipsychotic drugs, such as risperidone and aripiprazole, for treating irritability associated with ASD in children between certain ages.² Other drugs are often used to help improve symptoms of autism, but they are not approved by the FDA for this specific purpose. All medications carry risks, some of them serious. Many have age restrictions.
- ❑ **Selective serotonin re-uptake inhibitors (SSRIs)**
 - This group of antidepressants treats some problems that result from imbalances in the body's chemical systems.
 - SSRIs might reduce the frequency and intensity of repetitive behaviors; decrease anxiety, irritability, tantrums, and aggressive behavior; and improve eye contact.
- ❑ **Psychoactive or anti-psychotic medications**
 - These types of medications help with mood regulation and decrease aggression and self harm.
 - These medications can also decrease hyperactivity and reduce stereotyped behaviors.
- ❑ **Stimulants**
 - This group of medications can help to increase focus and decrease hyperactivity in people with autism. They are particularly helpful for those with mild ASD and ADHD symptoms.
- ❑ **Anti-anxiety medications**
 - This group of medications can help relieve anxiety and panic disorders, and symptoms of obsessive-compulsive symptoms, which are often associated with ASD.
- ❑ **Anticonvulsants**
 - These medications treat seizures and seizure disorders, such as epilepsy. (Seizures are attacks of jerking or staring and seeming frozen.)
 - Almost one-third of people with autism symptoms have seizures or seizure disorders.
 - These medications can also help with mood regulation.

How Do Medications Work?



- Most medications alter the serotonin, dopamine, and/or norepinephrine pathways.
- Medications increase neurotransmitters in the synapse (extracellular levels).
- These medications are designed to decrease dopamine in the limbic system (D3 and D4 receptor sites) and increase dopamine in the Prefrontal Cortex (D1 and D2 receptor sites).
- Medications also can decrease norepinephrine in the Limbic system (decreases hyperactivity and aggression).

Categories of Medications Used to Treat Mental Health Conditions in Childhood

Autism Spectrum Disorder

Medications	Concurrent Diagnosis	Age Range	Dose Range	Comments
Stimulant medications: Methylphenidate (Ritalin, Concerta, Jornay), Dexmethylphenidate, Dexamphetamine, etc	ADHD	6 years	5 to 60 mg per day dependent on medication	Comes in immediate release, extended release with morning and evening dosing. Effects last 4 to 16 hours.
Anti-epileptics (Lamotrigine, Valproic Acid)	ADHD	3 years	Variable	Lamotrigine has to be titrated slowly, watch for skin rash. Valproic Acid controversial.
Bupropion (Wellbutrin)	Depression and ADHD	12 years	50 to 300 mg	Comes in sustained and extended release. Watch for seizure threshold.
Atypical Antipsychotics: Risperidone, Aripiprazole, Olanzapine, Lurasidone, Quetiapine, Ziprasidone	Mood disorder, aggression behavior,	6 years	Variable	Regular labs to monitor for metabolic syndrome, watch for weight gain, tics.
SSRI and SNRI (Fluoxetine, Sertraline, Escitalopram, Venlafaxine, etc.	Depression, anxiety, OCD	6-12 years		No measurable effects in clinical trials.

Categories of Medications Used to Treat Co-Morbidity of ASD and ADHD

Attention Deficit Disorder and Hyperactivity and Impulsivity

Medications	Age Range	Dose Range	Comments
Methylphenidate (Ritalin, Concerta, Jornay)	6 years	5 to 60 mg per day	Comes in immediate release, extended release with morning and evening dosing. Effects last 4 to 16 hours.
Dexmethylphenidate (Focalin)	6 years	5 to 40 mg per day	Comes in immediate release, extended release with morning dosing. Effects last 4 to 8-12 hours.
Dexamphetamine (Adderall)	6 years	5 to 60 mg per day	Comes in immediate release, extended release with morning dosing. Effects last 4 to 8-12 hours.
Lisdexamfetamine (Vyvanse)	6 years	1- to 70 mg per day	Extended release; last 10-12 hours.
Atomoxetine (Strattera)	6 years	10 to 80 mg per day	SNRI- works similar to antidepressants- takes 2-3 weeks to know effectiveness.
Bupropion (Wellbutrin)	12 years	50 to 300 mg	Comes in sustained and extended release. Watch for seizure threshold.

Categories of Medications Used to Treat Comorbidities in ASD

Mood Disorders and Intermittent Explosive Disorder

Medication	Age Range	Dose Range	Comments
Aripiprazole (Abilify)	6-17 years	2-10 mg daily (can dose up to 30 mg per day)	Monitor for metabolic syndrome
Risperidone (Risperdal)	5-17 years	0.25 to 3 mg daily	Approved for treatment of irritability in children with ASD
Lurasidone (Latuda)	10-17 years	20-80 mg	Monitor for metabolic syndrome
Olanzapine/Fluoxetine combination	10-17 years	6/25-12/50	Monitor for metabolic syndrome
Quetiapine (Seroquel)	10-17 years	25- 400 mg	Monitor for metabolic syndrome; tiredness
Lithium	12-17 years	Dose to achieve target serum levels of .8-1.2	Lithium toxicity, kidney damage, weight gain
Lamotrigine (Lamictal)	2-17 years	25 -400 mg carefully titrated	Stevens-Johnson Syndrome

Effects and Side Effects of Medication

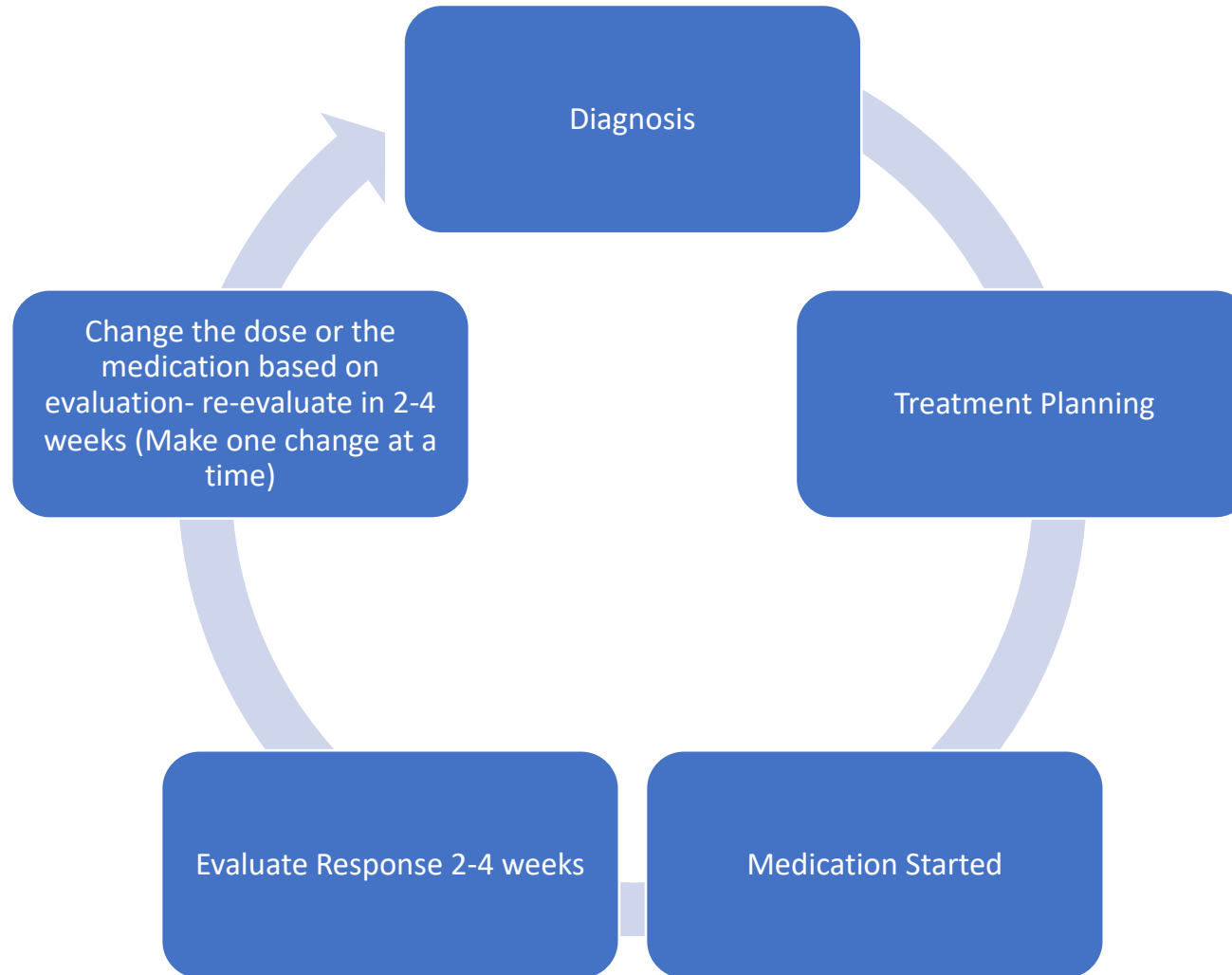
Effects:

- 50-60% improve in behavior,
- Improved academic skills and executive functioning
- Improved mood with decreased aggression, agitation, depression, and anxiety
- Decreased self harm
- Improved social skills
- Improved mental health

Side Effects:

- Sleep disruption
- GI symptoms
- Decreased or increased appetite
- Change in heart rate
- Increased blood pressure
- Altered growth
- Mood changes
- Irritability
- Fatigue
- Weight gain
- Metabolic syndrome
- Suicidal ideation

FLOW OF MEDICATIONS



Medication Management: Risk of Not Giving Medications

❑ Increased behavioral problems

- Aggression
- Perseveration

❑ Decreased developmental gains

- Communication
- Social Skills
- Cognitive Learning



Logan, S., Carpenter, L., Leslie, R., Hunt, K., Garrett-Mayer, E., Charles, J., & Nicholas, J. (2014). Rates and Predictors of Adherence to Psychotropic Medications in Children with Autism Spectrum Disorders. *Journal of Autism & Developmental Disorders*, 44(11), 2931–2948.

<https://doi-org.ezproxy.proxy.library.oregonstate.edu/10.1007/s10803-014-2156-0>

Medication Management “Keynote” Summary

1. Medications are used to treat target symptoms and comorbidities; not to treat ASD.
2. Medications are part of the treatment plan; not the only part.
3. Medications have benefits and side effects; medication interactions must be considered especially in a child taking more than one medication.
4. Follow-up and evaluation is very important and often neglected.
5. Make one change at a time: Right medication? Right dose?
6. Discuss weaning off medications: Most cannot be stopped abruptly
7. Discuss home manipulation of medications: Be clear about “as needed” vs. routine vs. scheduling throughout the day and night.

Collaboration with Medication Management

❑ What the Prescribing Provider would Like to Know from the Behavior Analyst:

- Increase or decrease of target behavior
- Treatment plan in addition to medication management
- Indication of side effects (i.e., excessive fatigue, irritability, headaches, change in appetite)

❑ What the Behavior Analyst would Like to Know from the Prescribing Provider:

- Name, dose, and administration schedule for each medication the child is taking
- Potential side effects
- What happens if a dose is missed or if a parent decides to stop the medication



***Note.** Research indicates Behavior Analysts are consistently trained or involved in medication management, yet they are most involved with monitoring the target behaviors that are impacted by medications.

***Note.** Behavior Analysts and Prescribing Providers need to continually work on improved consultation and collaboration through improved communication strategies.

MEDICATION MANAGEMENT

QUESTIONS?





B R E A K

ASD Treatments: In Addition to Medications

□ Types of Treatments

- There are many types of treatments available. These include applied behavior analysis, social skills training, occupational therapy, physical therapy, sensory integration therapy, and the use of assistive technology.
- The types of treatments generally can be broken down into the following categories:
 - Behavior and Communication Approaches
 - Dietary Approaches
 - Complementary and Alternative Medicine
 - Environmental Approaches
 - Parenting Strategies

Reminder: ASD and Medication

There are no medications that can cure ASD or treat the core symptoms. However, medications are used to help some people with ASD function better. For example, medication might help manage high energy levels, inability to focus, anxiety and depression, behavioral reactivity, self-injury, or seizures.

Source: CDC: <https://www.cdc.gov/ncbddd/autism/treatment.html>

Multidisciplinary Treatment Team: Roles and Responsibilities

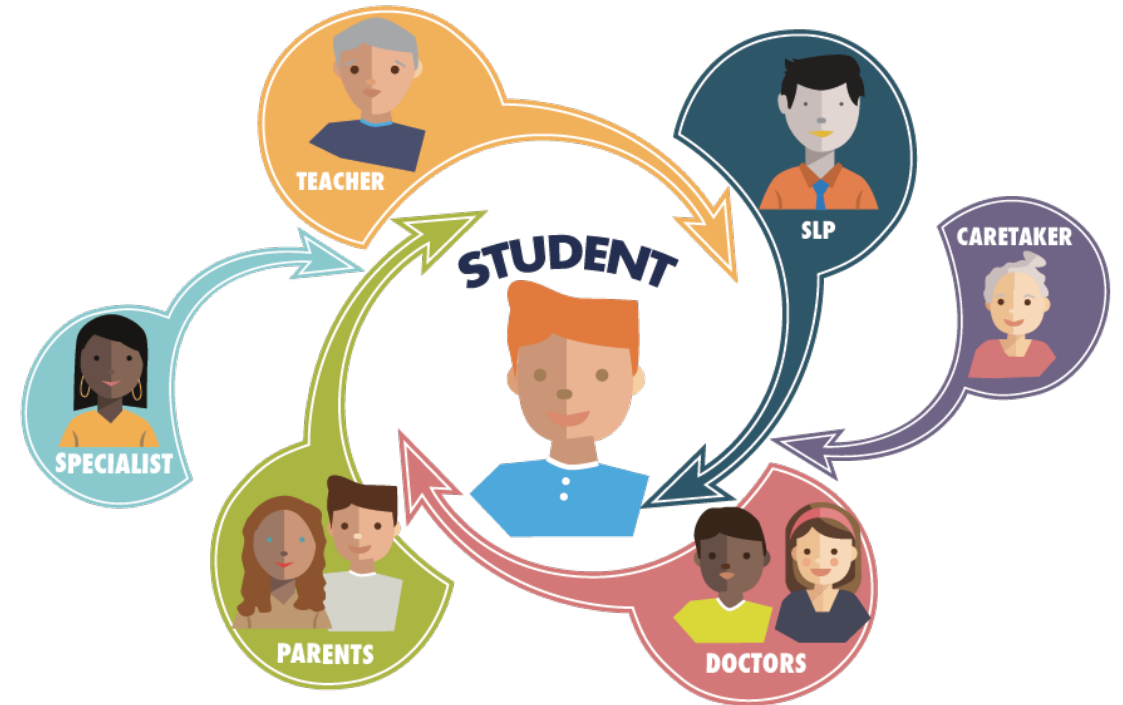
Title	Roles and Responsibilities
Psychiatrist	Primarily diagnosis, medication management, monitoring of effectiveness of medications and side effects.
Psychologist	Assessment of behavior and academic/developmental skills, diagnosis, development of treatment plan and strategies, ongoing counseling and evaluation; neuropsychic evaluations.
Pediatrician	Medical home for well child checks, immunizations, monitoring for medication interactions, family education.
Behavior Analysts	Development and evaluation of behavioral interventions, parent education and support
Speech Therapists	Development and evaluation of speech therapy interventions, parent education and support.
Educators	Implementation of appropriate educational plan in the least restrictive environment.
Parents	Team leaders; carry out agreed upon treatment plan, provide evaluation information, often put in the role of case managers.



Wraparound Services / Care Coordination

What are wraparound services?

- Care planning process for youth with mental health concerns and complex needs.
- Identifying strengths, needs, and culture of the child and family.
- A wraparound team might include friends, relatives, teachers, specialists, etc.
- The behavior analyst is typically helping the family coordinate all the different support services.
- Insurance companies now provide funding for parent training, and many are starting to fund care coordination where the behavior analyst can meet with outside providers regularly to provide continuity of care across all environments.



Medical vs. Educational Diagnosis: Why Does it Matter?

Medical Diagnosis:

- Medical Model: Family and Health History
 - Diagnostic Tests
 - Differential Diagnosis
 - Medical Treatment

Educational Diagnosis:

- Emphasis is on impact on function and educational achievement
- Diagnosis based on observation and testing of target concerns (development and academic achievement)

Both result in diagnosis, and referral to specialist and specialty services. Medical Diagnosis necessary for medical services (i.e., speech therapy, physical therapy, and ABA services outside the school system.) Educational Diagnosis required for special education services, which may include speech therapy, physical therapy, and ABA services. Educational Diagnosis necessary for an Individual with Disabilities Education Act (IDEA) Plan.

BEHAVIORAL STRATEGIES

☐ ABA therapy

- Behavioral plans should include outcomes and data monitoring for cognitive, social, communication, and behavioral skills
 - Written behavioral plans need to be shared with parents with parental counseling and training, and environmental adaptations.
- Cognitive Behavioral Therapy
- Mindfulness
- Social Skills- Flex Programs

Note. Children attending university-based programs do better than community-based programs

- Training of staff
- Education and involvement of parents



Nahmias AS, Pellecchia M, Stahmer AC, Mandell DS. *J Child Psychol Psychiatry*. 2019 Nov;60(11):1200-1209. [PMID: 31206690] ; Shaffer, R. C., Wink, L. K., Ruberg, J., Pittenger, A., Adams, R., Sorter, M., Manning, P., & Erickson, C. A. (2019). Emotion Regulation Intensive Outpatient Programming: Development, Feasibility, and Acceptability. *Journal of Autism & Developmental Disorders*, 49(2), 495–508. <https://doi-org.ezproxy.proxy.library.oregonstate.edu/10.1007/s10803-018-3727-2>

ABA

❑ Applied Behavior Analysis (ABA): is a therapy based on the science of learning and behavior (Autism Speaks)

- Increases language and communication skills
- Decreasing challenging behaviors using replacement
- Improves attention, focus, social skills, memory, and academics.

❑ Flexible: Setting, individual or group, uses A-B-C's (antecedent, behavior, and consequence)

❑ ABA Goals typically include:

- Communication and language
- Social skills
- Self care and daily living skills
- Play and leisure
- Motor skills
- Learning and academic skills

❑ Skills are taught in small, measurable steps starting with simple and moving to complex.

❑ Behavior analyst collects data to monitor progress and to evaluate plan.

FOUR FUNCTIONS OF BEHAVIOR

1. Escape/Avoid
 2. Attention
 3. Obtain/Access
 4. Sensory
- Determining the function of behaviors can be complicated and interventions can have pros and cons. Depending on the unique needs of each child, individualized behavior patterns, and environmental triggers, it may take a combination of strategies to manage problem behaviors.
 - If you have questions about your specific child's behavior, consult a local behavior analyst for resources and intervention support.



What is Escape Maintained Behavior?

- A behavior that primarily happens to avoid, delay, or end something unpleasant.
- The behavior is maintained or persists because it was effective at escaping or avoiding the unpleasant thing in the environment.

Challenges/Issues	What it looks like	Examples	Some common strategies (more in Content Application CEU)
"My child is always refusing when I ask him to do things."	Stop a demand or task in progress.	Substituting words or phrases to avoid stuttering.	Provide more frequent breaks at regular times.
"I am constantly repeating myself."	The behavior can work to prevent something from happening in the first place.	Refusing to do chores when asked.	First-Then schedules
"I wish my students followed instructions the first time."	Delay an un-preferred task.	Stall tactics before bedtime.	Visual schedules that show when a break is coming.
	Avoiding tasks.	Pushing vegetables around the plate or throwing them on the floor at mealtime.	Shorten the task
	Throwing materials on the ground is no longer required to complete the task.	Talking to a friend during independent work time.	Teach compliance strategies.
	The child puts his/her head down on the desk when presented with a work task and then is no longer required to finish the work task.	Running away when a teacher says it is time to line up for library.	
		Whining about the difficulty of homework when a parent is helping with homework.	
		Tantrum/physical aggression when a parent tries to comb hair.	

What is Sensory Seeking Behavior?

A large class of behavior or responses that occur to meet a sensory need. Individuals engage in sensory (sights, sounds, smells, tastes, textures, body movements) responses as a way to obtain feedback from the environment. No two individuals demonstrate the same sensory seeking behaviors.

Challenges/Issues	Examples	Some common strategies (more in Content Application CEU)
Sensory seeking behaviors can be the most challenging problem behaviors to manage.	Body movements (hand-flapping, covering ears, hair twirling)	Make environmental accommodations – turn down the music, dim the lights, etc.
Sensory seeking behaviors are likely to happen regardless of social variable.	Providing pressure or squeezing to certain parts of the body	Try a sensory diet – provide safe ways to access the sensory feedback.
	Waving or placing objects near the eyes	Use the first this, then this schedule and give access to the sensory seeking activities.
	Covering the eyes to avoid bright lights or patterns	
	Chewing on objects or clothing	
	Avoiding perfumes, lotions, or air fresheners	
	Strong aversions to specific food textures	

What is Attention-Maintained Behavior?

Any behavior the student engages in (positive or negative) that results in an adult or student providing some form of social acknowledgement to the child. Attention seeking behaviors are social, they only happen in the context of other people.

Challenges/Issues	Examples	Some common strategies (more in Content Application CEU)
Maintained by social attention from others – looking for a response from others	Distracting other classmates	Provide attention on a time-based schedule.
May start as mild and easily redirected, but can quickly become a problem	Repeatedly using problem behavior to divert your focus	Set clear expectations for all students about attention seeking behaviors.
Often does not respond when addressed with a reprimand – negative attention like a reprimand can be all the attention the child needs to continue in the problem behavior	Out of seat behavior	Practice and reward how to appropriately ask for attention.
The child might act a certain way to get others to laugh with them or play with them	Blurting out	
	Making noises	
	Bullying or teasing peers	
	Excessive hand-raising	
	Talking when it is not appropriate	
	Whining to get parent attention	
	Throwing items across the room while mom or dad is on the phone and gets attention from parent	

What is Obtain/Access (tangibles, activities, etc.) Maintained Behavior?

Any behavior the student engages in that results in gaining access to preferred items, people, or activities.

Challenges/Issues	Examples	Some common strategies (more in Content Application CEU)
Difficult in school setting, adhering to routines can be a challenge	Your student goes up to his sibling or classmate and pushes them and as a result gets the toy car, learns that pushing other gains access to the item.	Clarify what items and activities are available to the child.
Other children can get in the middle of the challenging behaviors and get hurt	Crying or screaming at the store so that mom or dad will buy a cookie for them to eat while grocery shopping occurs.	Teach the child to request items or activities or initiate access on own.
Difficulty tolerating or accepting “no”, “wait”, etc.	The child wants a toy that the therapist is holding and grabs for it, the child ultimately gets it and learns that grabbing affords him access to the toy.	Provide access to tangibles/activities only following appropriate behavior (e.g., requests).
		Withhold tangible reinforcers after problem behavior (including “negotiation”).

Case Study: Matt: With Medication and ABA

Demographics, background and environments:

- 12-year-old diagnosed with ASD-severe at 18 months of age. Twin is also diagnosed with ASD- mild
- History – Single mother with high stress pregnancy; Matt born premature at 32 weeks
- Special education in life skills room
- Developmental skills at 4–5-year level; verbal and communication skills at 22-month level with echolalia
- Behavior problems include aggression, manic laughing and screaming, self harm, sleep disturbance, OCD symptoms

Education planning and teaming:

Prior to intervention

- ***Individual challenges*** – aggression and temper tantrums prevented Matt from interacting with any interventions. Mother was very stressed and isolated in her house
- ***Classroom challenges*** – Aggression, wandering, obsessive searching, poor communication, global delays

After Interventions

- ABA therapy at 3-4 years, and restarted at 11 years, parent training and education, social skills, exercise and hammock breaks, and lots of positive behavior support), family counseling
- ***Medications:*** Currently on Lurasidone titrated to 80 mg; Sertraline; Concerta; Clonidine .1 mg BID. Haldol used for extreme and dangerous aggression.
- ***Classroom community*** – the whole school wrapped around this student and teaming continued across grades, improved classroom community, parent education and family counseling was a success – interventions at home as well created consistency across environments

Conclusion: Matt

Treatment Plan:

- WRAP around services to include individual and family therapy and case management: Counselor, case manager, Behavior analyst, and medication provider. WRAP meetings every two weeks.
- Behavioral plan shared across home and school: Behavior analyst
- Environmental safety (knives, pantry, refrigerator locked): Case Manager and Behavior Analyst
- ABA 30 hours per week: Behavior analyst
- Speech therapy 2 hours per week: Speech therapist
- Occupational therapy 1 hour per week: Occupational therapist
- Physical therapy (high tone and toe-walking) 1 hour per week with splinting: Physical therapy and medical consultation and splinting
- Medication management: Specialist: Currently on Lurasidone titrated to 80 mg; Sertraline; Concerta; Clonidine .1 mg BID. Haldol used for extreme and dangerous aggression. Medication evaluation weekly to monthly.
- Counseling: Outpatient individual and family counseling three times per week.
- Special educational services: Life Skills Room with IEP: School

Outcomes: Aggressive behavior decreased from 4-5 times daily to once per week. Mother felt more supported. Matt was better able to access learning with improved behavior management. Language now includes sentences up to 6 words with decreased echolalia.

Alternative Treatments

☐ Diet

- Essential Fatty Acids: 1200 mg of Omega 3 per day
- Vitamins
- Food restrictions (i.e., gluten, dairy, food dyes, etc.)

☐ Melatonin

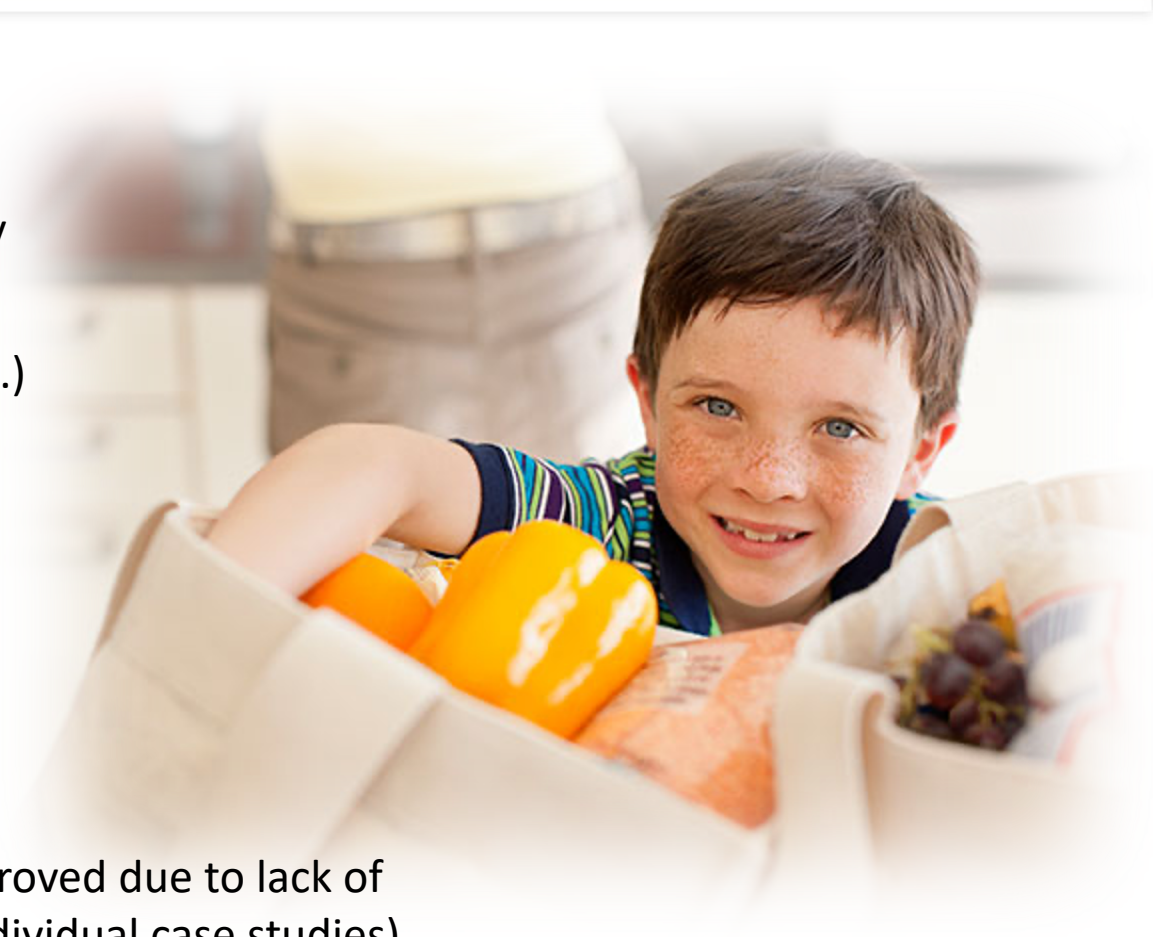
☐ Neuro-stimulation therapy

☐ Yoga

☐ Exercise

☐ Essential oils

- ☐ Many other therapies have been tried, but not yet approved due to lack of efficacy in large trials (only isolated improvement in individual case studies).





HOW TO APPROACH RELUCTANT PARENTS?

ASSESS WHERE THE FAMILY IS:

- Understanding of ASD
- Where they received information thus far
- Ability to understand medical information
- Values and beliefs regarding medical model of treatment
- Use face-to-face education rather than relying on reading material/Internet searches alone
- Avoid rushing; give time
- Start with behavioral approaches
- Use a collaborative approach with school, behavioral health, pediatrician, specialist, parents, and child.
- Set goals “with” the family rather than “at” the family



- Respect for autonomy
- Appropriate information
- Appropriate referral
- Beneficence
- Non-maleficence:
First do no harm
- Justice

ETHICAL DILEMMAS



DISPELLING MYTHS

- ASD is caused by poor parenting (“cold mothers”)
- The MMR vaccination causes ASD (Hansen & Frisch, & Melbye, 2019)
- Those with ASD have high intelligence
- Kids with ASD will “grow out of it”
- Medications do not help children with ASD and are only used to control behavior

SUMMARY

ASD is a medical condition with target symptoms identified by the DSM 5.

Medications are effective in treating the target symptoms of comorbidities associated with ASD.

Classifications of medications include stimulant and non-stimulant medications, atypical antipsychotics, anti-epileptics, and antidepressants.

The most effective behavioral strategies used to treat ASD is ABA.

Parents need face-to-face information, collaborative goal setting, time, support, and opportunity to explore options.

Ethical dilemmas include access to care, regulating scheduled medications, and appropriate diagnosis and monitoring across time.

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ACKNOWLEDGEMENTS

Thank you for attending Special Learning's

Psychopharmacology Module 3: Psychopharmacology and Autism

Thank you to our exceptional group of subject matter experts and panelists for providing us with an exceptional learning experience

- *Deborah P. Coehlo, PhD, C-PNP, PMHS, CFLE*
 - *Ronald Brown, PhD*
 - *Manya C. Ralkowski, EdS, BCBA, LBA*

Thank you to the wonderful Special Learning team members without whom our experience would be greatly diminished (or just plain disorganized!)

- *Diane Allen, BCBA (SL Clinician)*
 - *Nicole Diana (President)*
- *Michelle Capulong (Client Support Manager)*
 - *Sasho Gachev (Creative Director)*

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