

BRIEF INTERVENTIONS: AUTISM SPECTRUM DISORDER

BI-PED PROJECT (BRIEF INTERVENTIONS: PEDIATRICS)

Emotional Health Committee and the Early Childhood Committee

Maryland Chapter American Academy of Pediatrics

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Autism Spectrum Disorder (ASD) is a common neurodevelopmental condition with reported prevalence in the United States of 1 in 31 children (3.2%) (1)

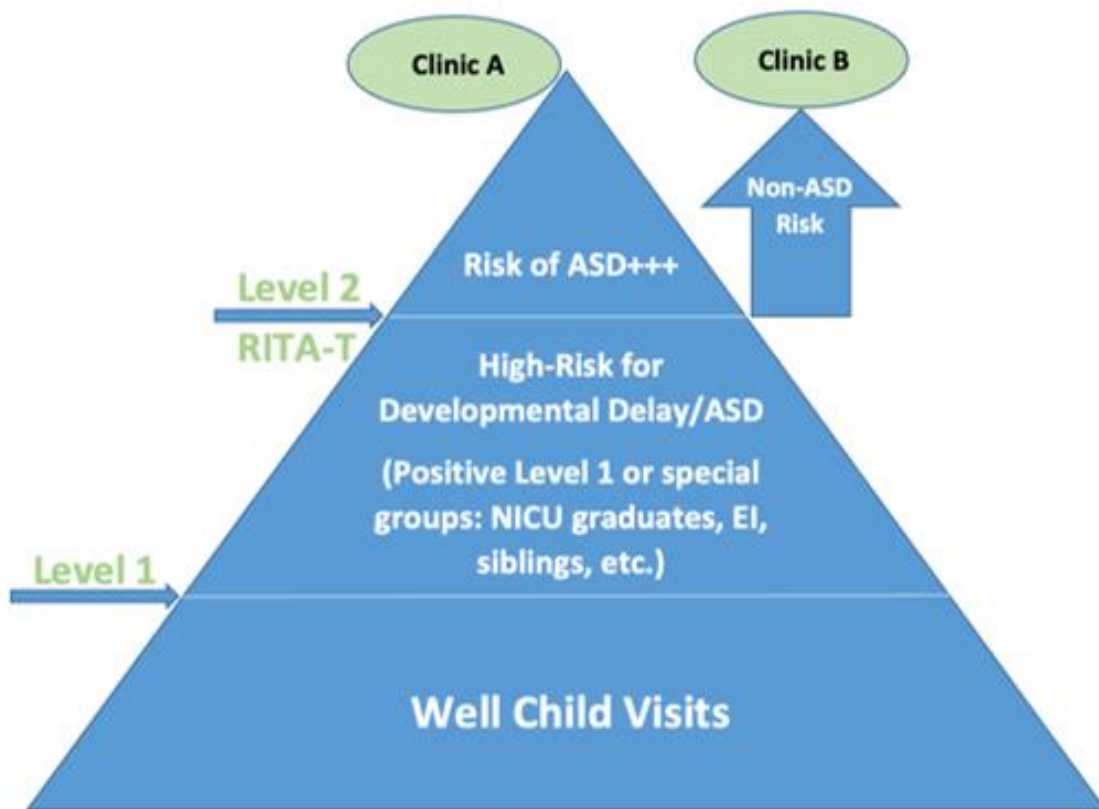
All primary care providers can expect to care for children with autism in their practice. Given the high prevalence of ASD and the limited number of specialists/long wait lists for evaluations, PCPs are becoming more involved in assessment for ASD. The American Academy of Pediatrics has published a clinical report in 2020 which provides comprehensive information for pediatric providers (2)

This document below offers a practical overview of brief intervention for the PCP, which include tools for surveillance and screening (level 1 and level 2 screens), detection of early signs (appendix A), comprehensive assessment including direct observation (appendix B template) and guidance and provision of care for children with ASD after a diagnosis of ASD is made.

The AAP recommends developmental surveillance at all ages and ASD screening at 18 and 24 months if no concerns are raised before.

- a) **Developmental Surveillance/monitoring:** open ended questions, observations (all ages): for example:
 - a. Do you have any concerns about how your child walks or talks, or plays, or interacts with other children?
 - b. Do you have any concerns about your child's development?
- b) **Developmental Screening:**
 - Level 1 screens (AAP recommends screening at ages 18 and 24 months),
 - Level 2 screens (for high risk populations including: children with a positive level 1 screen, NICU graduates, siblings of children with ASD, etc.)

Two level screening in Primary Care



Choueiri et al, Journal of Autism and Developmental Disorders (2021) 51:3937–3945
<https://doi.org/10.1007/s10803-020-04851-3>Level

Examples of early signs of ASD (see **appendix A** for details)

1. Child does not answer to name, does not point, does not make interactive eye contact with others
2. Parents may report repetitive behaviors and play
3. Language delay
4. Language and/or developmental **regression** at any age
5. Delay in joint attention: following parent's point or gaze

How to observe/elicit early signs of ASD: See Appendix A and B for definitions and checklists- In Appendix B, the Early Autism Screening Inventory (EASI) lists activities that you can observe for and document:

- **History:** Early signs/concerns for ASD can be obtained by observation or if parents bring them up as concerns. You can use the Example Autism History template in Appendix B if you have further concerns.
- **Observations:** We recommend having some toys in the exam room that are age appropriate (e.g. small toy cars; a pop up toy; a shape sorter; toys of different animals; puzzles; a doll). Monitor *play* and *communication* for signs of ASD:
 - While talking with parents, observe how the child is *playing*. Do you note atypical play such as repeatedly putting toys in and out of containers, spinning or throwing objects, lining up objects, or displaying general disinterest in play?
 - Observe how the child *communicates*. How does the child use eye contact, gaze, gestures such as pointing, vocalization and verbalization to communicate? Does receptive and expressive language appear delayed? Does the child simply echo what they hear? Listen for atypical language prosody (pitch, loudness, tempo, intonation).
 - How does the child *ask for help*? Do they communicate with parents to show interest in a toy out of reach and then share it together with them **or** do they simply take their parent's hand to reach for the object but not share it in play together?
- **Elicit behaviors:**
 - Call the child's name
 - Point to an object and see if they follow
 - Consider having BUBBLES in your office which can be an important part of the evaluation. Is the child only looking at the bubbles or is the child engaged and display joyful joint attention with an adult? Does the child seem disengaged, distressed or overly excited with spillover motor activity such as hand flapping and spinning?

- Can the child be playfully engaged in simple imitation of the examiner? (clapping, rolling a car, pretending that a frog is hopping).
- Does the child play imaginatively with a doll or just mechanically handle it? Is the examiner included or excluded in the play?

ASD screening level 1 or universal screen is recommended by the AAP at 18 and 24 months for all children. However, level 1 screening is recommended to be completed at any point if there are concerns for ASD. Some primary care providers also screen at the 30 months well child visit.

Examples of level 1 screeners:

- Ages and Stages Questionnaires SE-2 (ASQ-SE2)
- Communication and Symbolic Behavior Scales (CSBS- IT)
- Parents Observations of Social Interaction (POSI)
- Modified Checklist for Autism in Toddlers Revised (MCHAT– R) with follow-up (M-CHAT-R/F)

If the first level ASD screen is *positive*:

The AAP recommends referring to Early Intervention services, obtaining a hearing test and referring for further developmental evaluation.

- **However, wait time to be evaluated can be up to 12-24 months in some areas in the United States.** *The RITA-T level 2 screener* can be used for *triaging and fast tracking* referrals to developmental centers in MD, MA, SC, and TX. The RITA-T can also be used to inform diagnostic evaluations in primary care and beyond.
- There is further information from the AAP regarding primary care provider completion of a diagnosis for those children with clear signs of ASD (Reference 2 and Table 1)
- In addition, insurance carriers may approve consultation services such as ABA, OT, PT and speech and language therapy when referred by a pediatric primary care provider using DSM 5 criteria for documentation.

ASD screening level 2 / assessment tools (high risk)

TABLE 1 Example emerging tools and strategies that can be applied to autism diagnosis in primary care

Approach	Example tools
In-person or remote observational testing	<ul style="list-style-type: none"> • Screening test for autism in toddlers (STAT; Stone et al., 2004) • Brief observation for symptoms of autism (BOSA; Dow et al., 2021) • Rapid interactive screening test for autism in toddlers (RITA-T; Choueiri et al., 2021) • TELE-ASD-PEDS (Corona et al., 2020)
Caregiver interview	<ul style="list-style-type: none"> • Toddler autism symptom inventory (TASI; Coulter et al., 2021)
Mobile health Application	<ul style="list-style-type: none"> • CanvasDx (Cognoa, 2022) • Naturalistic observational diagnostic assessment (NODA; Behavior Imaging, n.d)
Semi-structured observation/ interview	<ul style="list-style-type: none"> • Childhood autism rating scale-2 (CARS-2; Schopler et al., 2010)
Training and consultation models	<ul style="list-style-type: none"> • Extension for community healthcare outcomes (ECHO) Autism (e.g., Mazurek et al., 2019; Mazurek et al., 2020; Sohl et al., 2017) • Screening tools and referral training-evaluation and diagnosis (START-ED) model (McNally Keehn et al., 2020) • Streamlined evaluation model within primary care (STAT-BHC; Hine et al., 2020)

Note: Table highlights both tools and approaches that have been or have the potential to be applied to autism diagnosis in primary care. This table does not include an exhaustive list of tools and strategies, but instead serves to portray examples.

Highlighted resource for training on a level 2 screen:

A purple poster for RITA-T Training. At the top, a green banner contains the text "RITA-T Training" in white, with "Rapid Interactive Screening Test for Autism in Toddlers" in smaller white text below it. To the right is the Kennedy Krieger logo. Below the banner, white text reads: "A rapid, reliable, research-validated tool to help early childhood providers identify autism in young children". Three blue rounded rectangles with icons (sun, clock, and JHSM logo) contain the text: "Train in just a few hours", "Administer in 20 minutes", and "CME/CEU through JHSM". At the bottom, there is a photo of children on a laptop, a QR code, and the URL "KennedyKrieger.org/RITA-T".

RITA-T Training
Rapid Interactive Screening Test for Autism in Toddlers

Kennedy Krieger

A rapid, reliable, research-validated tool to help early childhood providers identify autism in young children

Train in just a few hours

Administer in 20 minutes

CME/CEU through JHSM

KennedyKrieger.org/RITA-T

A validated interactive screening measure is better at eliciting early developmental constructs that are delayed in children with ASD when used in addition to a level 1 screening questionnaire. Interactive screening measures need to be validated for children ages 18-36 months with established cut off risk scores and should easily fit into a clinical practice. The RITA-T is an example of such an interactive measure that can improve the quality of the PCP evaluation and in some states expedite access to specialty care.

Autism assessment/diagnosis in primary care

The diagnostic process of ASD involves

1. A DSM-5 criterion-based interview
2. A comprehensive medical, developmental, social and family history interview (including screening for risks) (see appendix B)
3. Physical and neurological examination
4. Structured behavioral observation (example RITA-T and see appendix B)
5. Hearing and vision
6. Collateral information from other sources if applicable

Diagnostic formulation: some PCP's may choose to perform a more complex diagnostic evaluation that may require additional training:

1. Synthesize findings and use ASD criteria. Articulate why the child meets criteria for ASD and not better explained by another diagnosis. For DSM- 5 Autism Spectrum Disorder Criteria see:
https://www.cdc.gov/autism/hcp/diagnosis/index.html#cdc_hcp_diagnosis_consider-diagnostic-tools-for-asd
2. NOTE: Some payers/agencies may require specific documentation elements such as the DSM-5-TR checklist or a specific standardized tool such as the Childhood Autism Rating Scale (CARS 2- ST Standard version or the HF High Functioning version which can be used by a PCP but require additional training). Some payers may request the Autism Diagnostic Observation Schedule-2 (ADOS-2) which is a validated diagnostic tool that is not easily integrated into pediatric primary care and typically requires specialty referral.
3. Offer other/co-occurring diagnoses as applicable with specifiers that highlight:
 - With or without accompanying intellectual impairment
 - With or without accompanying language impairment
 - Use additional codes to identify associated medical, genetic condition or environmental factors or concurrent neurodevelopmental, mental, or behavioral disorders

Next steps/recommendations:

1. Outline next steps for the child with recommendations for clinical, educational and community resources.
2. Establish a follow-up schedule to monitor developmental progress, co-occurring conditions and child/family well-being.

Interventions:

1. Medical:

- a. Etiology consideration and referral for neurogenetic testing
- b. Address common co-occurring conditions (sleep, GI, anxiety, etc.)

2. Developmental/educational

- a. Refer for Early Intervention ages 0-36 months which are free, do not require a diagnosis and provide Naturalistic Developmental Behavioral Interventions (check your state website)
- b. Refer for school-based services ages 3y-21
- c. Additional speech therapy, OT and PT when needed

- d. Identify preschool programs for toddlers to create a social milieu and language stimulation
- 3. Behavioral:**
- a. Refer to ABA therapy if indicated for social and communication skills and externalizing behavior problems
- 4. Care coordination:** social work support if available

RESOURCES:

Developmental surveillance:

- AAP Healthy children.org
<https://www.healthychildren.org/English/health-issues/conditions/Autism/Pages/Early-Signs-of-Autism-Spectrum-Disorders.aspx>
- CDC Learn the Signs Act Early (<https://www.cdc.gov/ncbddd/actearly/index.html>)

Developmental screening:

- AAP STAR Center:
 Screening Technical Assistance Resource Center (STAR) offers resources on developmental and behavioral screening tools including ASD
<https://www.aap.org/en/patient-care/screening-technical-assistance-and-resource-center/screening-tool-finder/?facets=%5B%5D&page=1>)

Autism assessment and treatment in primary care:

- American Academy of Pediatrics
 - Diagnosing Autism in the medical home <https://www.aap.org/en/patient-care/autism/autism-diagnosis-in-primary-care/>
 - Autism Toolkit <https://publications.aap.org/toolkits/pages/Autism-Toolkit?autologincheck=redirected>
- IACC (Interagency Autism Coordinating Committee)
 - <https://iacc.hhs.gov/resources/about-autism/toolkits/>
 - <https://iacc.hhs.gov/resources/organizations/private/>
- Autism Speaks
 - Toolkits
- Autistic Self Advocacy Network
- Maryland specific
 - Pathfinders for Autism
- [Complementary & Alternative Therapies for Autism - HealthyChildren.org](https://www.healthychildren.org/English/health-issues/conditions/Autism/Pages/Early-Signs-of-Autism-Spectrum-Disorders.aspx)

References:

1. Shaw KA, Williams S, Patrick ME, et al. Prevalence and Early Identification of Autism Spectrum Disorder Among Children Aged 4 and 8 Years — Autism and Developmental Disabilities Monitoring Network, 16 Sites, United States, 2022. *MMWR Surveill Summ* 2025;74(No. SS-2):1–22.
2. Hyman, S. L., Levy, S. E., Myers, S. M., Kuo, D. Z., Apkon, S., Davidson, L. F., Bridgemohan, C. (2020). Identification, evaluation, and management of children with autism spectrum disorder. *Pediatrics*, 145(1).
3. Choueiri, R., Lindenbaum, A., Ravi, M., Robsky, W., Flahive, J., & Garrison, W. (2021). Improving early identification and access to diagnosis of autism spectrum disorder in toddlers in a culturally diverse community with the rapid interactive screening test for autism in toddlers. *Journal of Autism and Developmental Disorders*, 1-9.
4. Wieckowski AT, Zuckerman KE, Broder-Fingert S, Robins DL. Addressing current barriers to autism diagnoses through a tiered diagnostic approach involving pediatric primary care providers. *Autism Res.* 2022;15(12):2216-2222. doi:10.1002/aur.2832.
5. RITA-T program website has recommendations for integrating screening into practice: www.kennedykrieger.org/RITA-T/integration
6. Roula Choueiri, MD , William T. Garrison, PhD , Valerie Tokatli, BA , Naaz Daneshvar, BA , Jillian Belgrad, BA , Guangyu Zhu, PhD, and Bo Zhang, PhD. The RITA-T (Rapid Interactive Screening Test for Autism in Toddlers) Community Model to Improve Access and Early Identification of Autism in Young Children. *Child Neurology Open* Volume 10: 1; 2023 DOI: 10.1177/2329048X231203817

APPENDIX A

Early signs of ASD – source: Healthy Children.org

What is joint attention?

Joint attention is looking back and forth between an object or event and another person and connecting with that person. It is a building block for later social and communication skills. Engaging in many back-and-forth social interactions, such as exchanging a lot of emotional expressions, sounds and other gestures, is called *reciprocal social interaction*.

Stages of joint attention in babies & toddlers:

There are several stages of joint attention. Children on the autism spectrum usually show delayed or absent social communication skills at every stage.

For example, below are ages when babies and toddlers typically use and understand gestures compared with young children on the autism spectrum.

Using & understanding gestures such as pointing

By 12 months of age:

- **Most children** can immediately look in the direction of an object a parent is pointing at. They will then look back at the parent and mimic the parent's expression, usually a smile.
- **Children on the autism spectrum** may appear to ignore the parent. This can cause parents to worry about their child's hearing.

By 15 months of age:

- **Most children** can point to out-of-reach objects that they want.
- **A child on the autism spectrum** may instead take a parent's hand and lead the parent to the object without making much, if any, eye contact. Sometimes the child may even place the parent's hand onto the object itself in order to obtain it.

By 18 months of age:

- **Most children** point at objects they find interesting. Children will look back and forth between an object and a parent to make sure the parent is tuned in to what they are looking at.
- **Children on the autism disorder spectrum** will often point to an object because they want a parent to get it for them, not because they want the parent to enjoy looking at the object with them.

Language delays & differences with ASD

Almost all children on the autism disorder spectrum show delays in nonverbal communication and spoken language. For example, you may notice differences such as:

The use of labels:

A child on the autism spectrum may have words they use to label things, for example, but not to ask for things. They may use words for objects *before* using words for people or family members.

Echoing & repeating:

Most young children go through a phase when they repeat what they hear. Children on the autism disorder spectrum may repeat what they hear for a longer period. They also may repeat dialogue from movies or conversations with the tone of voice they heard them in. This is called *parroting* or *echoing*.

Some children later diagnosed on the autism spectrum will seem to have met language milestones during the toddler years. However, their use of language may be unusual. For example, they may talk more like an adult than a toddler.

Regression in developmental milestones & skills:

About 25% of children later diagnosed with autism spectrum disorder may develop some language that they suddenly or gradually stop using. Typically, this may happen between the ages of 15 and 24 months. They might also become more socially withdrawn. This change is called a regression in skills.

APPENDIX B

Example Autism History Template (courtesy Dr Choueiri from the RITA-T Program)

History

Name

Age

Present at visit:

History of Concerns:

Developmental History:

Walking

Language:

Words:

Regression?

☐ Answering to name ☐ Pointing ☐ Hand leading

Repetitive behaviors: ☐ Lining things up ☐ Spinning ☐ Hands movements

☐ Eye contact ☐ Transitions/routines ☐ Behaviors/aggression ☐ Hyperactivity

☐ Collection items ☐ Watching things repetitively

☐ Sensory: sounds, textures, feeding, toe walking

☐ Feeding issues/gagging/choking/stuffing

☐ Empathy

Sleep: ☐

Interaction with other children:

“preoccupations behaviors”

Anxiety:

Strengths:

Medical History:

Number pregnancy:

Length:

Delivery

NICU stay

Medications ☐:

Allergies ☐

Hearing test ☐

Other medical issues:

Social history:

Current Services:

EI

IEP

Additional services

Early Autism Screening Inventory (EASI)
(Courtesy Dr. Choueiri from the RITA-T program)

	YES	NO	Caregiver endorsed	Observed
Answering to name				
Pointing				
Showing				
Rocking/headbanging/repeated crashing/toe walk				
Hand flapping/finger movements/stereotypies				
Joint Attention				
Follows a point				
Sensitive to sounds, touch, smells, textures				
Fleeting/Poor eye contact				
Uses their parents' hands to communicate (including pushing)				
Lines up toys/other objects - Stacks - Dumps				
Preoccupation with parts of a toy/object				
Routines/Rituals/Transitions are difficult				
Humming, singing, self-talk/gibberish/babbling				
Echolalia				
Repetitive/perseverative behaviors				

Spontaneous Play and Behaviors: Observe while gathering history from the child's parents:

Prior to the visit, the room should be set up with a small table and chairs and include such toys as a little toy car, school bus, rocket ship, puzzles, pop-up toy, blocks, toy animals such as a frog, playdough, play dishes and utensils, a doll.

1. Observe eye-contact
2. Spontaneous seeking of social overtures
3. Spontaneous gestures, social referencing (looking to the caregiver for cues when uncertain about what to do) and joint attention (see Appendix A)
4. Pretend play
5. Play: any lining up, repetitive behaviors, spinning
6. Sensory: any sensory seeking behaviors
7. Repetitive language, vocalizations
8. Repetitive movements: hand movements

Activities: (see the *How to observe/elicit early signs of ASD* section above for details)

1. Call the child's name 4 times and ask the parent to call the child's name
2. Call the child's name and point to something
3. Response to bubbles
4. Observe play with toys
5. Observe for imitation of the examiner playing with a frog, car, blocks
6. Observe for imaginative play with a doll or toy figures, eating tools, and/ or playdough
7. Observe for engagement with books when appropriate

Observations: