IEHP UM Subcommittee Authorization Guidelines
Screening, Assessment and Treatment of Autism Spectrum Disorder

Clinical Indications:

A. Surveillance:
Surveillance and screening for ASD should be part of every preventive care visit from infancy through school-age, and at any time thereafter if there are concerns about the Member’s social acceptance, learning or behavior. Siblings of children with ASD should be carefully monitored for acquisition of social, communication, and play skills, and the occurrence of maladaptive behaviors. All children should be screened at regular intervals in accordance with recommendations for preventive pediatric health care developed by the American Academy of Pediatrics, “Bright Futures” guidelines. (See Appendix A for the American Academy of Pediatrics (AAP) “Recommendations for Preventive Pediatric Health Care.”) The screening includes but is not limited to the following:

1. A health and developmental history
2. A comprehensive physical examination
3. Appropriate immunizations, lab tests, and lead toxicity screenings
4. Access to a comprehensive diagnostic evaluation (CDE) based upon a recommendation of a licensed physician and surgeon or a licensed psychologist for medically necessary diagnosis and treatment

The American Academy of Neurology (AAN) recommends the following developmental screening tools: Ages and Stages Questionnaire, the BRIGANCE Screens, the Child Development Inventories, and the Parents’ Evaluations of Developmental Status (American Academy of Neurology, 2).

B. Screening:
A standardized screening tool should be administered at any time when concerns about ASD are raised by parents or secondary to clinician observations or surveillance questions. All Members should be screened at the 18-month preventive care visit. Also consider screening all Members at the 24 month visit because some children may regress after 18 months of age The M-CHAT-R/F (Modified Checklist for Autism in Toddlers, Revised, with Follow Up) is a scientifically validated screening tool intended to be used at regular well-child checkups for children 16 to 30 months of age that assesses risk for ASD. The M-CHAT-R/F is available for download at http://mchatscreen.com. (See Appendix B for a sample form.) For siblings of children with ASD,
screening should be performed not only for autism-related symptoms but also for language delays, learning difficulties, social problems, and anxiety or depressive symptoms. Any of the following criteria listed by the America Academy of Neurology (AAN) are absolute indications for immediate evaluation for ASDs (American Academy of Neurology, 3).

- No babbling, or pointing or other gesture by 12 months, or
- No single words by 16 months, or
- No 2-word spontaneous (not echolalic) phrases by 24 months, or
- ANY loss of ANY language or social skill at ANY age

See Appendix C for the American Academy of Pediatrics’ (AAP) list of “Selected Level 1 and 2 ASD screening measures”. Level 1 screening tools are administered to all children within the context of a primary care medical home and are designed to differentiate children who are at risk of ASDs from the general population, especially those with typical development. Level 2 screening tools are used more often in early intervention programs or developmental clinics that serve children with a variety of developmental problems.

C. Assessment:

1. Procedure:

   If the results of an ASD-specific screening tool are positive or concerning then the following steps should be taken for all Members at the time of the visit:
   
   a. Provide parental education
   
   b. Refer for a formal audioligic evaluation even if the neonatal screening result was normal (may include frequency-specific brainstem auditory evoked response with or without sedation or otoacoustic emissions)
   
   c. Lead screening if pica is present or Member lives in a high risk environment
   
   d. Vision screening and referral to optometry/ophthalmology if indicated
   
   e. Schedule Member for a follow-up visit within 1 month to determine the status of the referrals and to address any further parental concerns
   
   f. Refer to the local school district if the child is over 36 months of age
   
   g. Refer to Inland Regional Center (IRC) for appropriate services if the Member is under 36 months and has a significant developmental delay or refer if the Member is over 36 months and has an Autism Spectrum Disorder.
   
   h. Refer the Member to IEHP for access to a Comprehensive Diagnostic Evaluation (CDE) including access to genetics, pediatric neurology, speech, occupational and physical therapy evaluations). Fax a copy of the Member’s ASD screening form and visit note to IEHP. The Member does not have to have a diagnosis of ASD in order to be referred for assessment services
   
   i. IEHP BH Care Management Staff will refer the Member to a Qualified Autism Service Provider (QASP) or Psychologist for a CDE. The CDE must be performed by a licensed physician or licensed psychologist with training and direct experience assessing children with developmental disabilities.
   
   j. The CDE may include, but is not limited to, the following: A comprehensive unclothed medical examination (by the primary care physician/pediatrician); a parent/guardian interview; direct play observation; review of relevant medical,
psychological, and/or school records; cognitive/developmental assessment; measure of adaptive functioning; language assessment (by a speech language pathologist); sensory evaluation (by an occupational therapist); and if clinically indicated, neurological and/or genetic assessment to rule out biological issues (by a developmental pediatrician, pediatric neurologist, and/or geneticist). (California Department of Health Care Services, 10)

2. Other Assessment Services:
   a. The following services may also be included in the assessment of the Member's condition:
      i. Medical evaluation including a complete history and physical exam focusing on the discovery of co-morbid conditions or identifiable syndromes or medical disorders associated with autism such as Fragile X syndrome, neurocutaneous disorders, phenylketonuria, fetal alcohol syndrome, Angelman syndrome and Smith-Lemli-Opitz
      ii. Genetic counseling for parents of a child with ASD
   b. The following services may also be considered on a case by case basis depending on clinical findings:
      i. Evaluation by a genetics specialist
      ii. Genetic testing in children with an ASD and coexisting global developmental delay/mental retardation or intellectual disability:
         • High resolution karyotype
         • DNA analysis for Fragile X syndrome
         • Methyl CpG-binding protein 2 (MECP2) analysis for female Members with regression and autistic features that are also consistent with Rett syndrome
         • Other medically necessary genetic testing as ordered by a genetic specialist, neurologist
      iii. Selective metabolic testing based on the presence of suggestive clinical and physical findings or if the results of the newborn screen are unknown
      iv. EEG: for clinical spells that may represent seizures or adequate sleep-deprived EEG with appropriate sampling of slow wave sleep in the presence of clinical seizures or suspicion of subclinical seizures, or a history of regressions at any age, but especially in toddlers and preschoolers

3. Background Information for Other Possible Assessments:
   a. Genetic testing:
      i. The AAN (American Academy of Neurology, 2), the AAP (American Academy of Pediatrics, 4,5) and DDS (California Department of Developmental Services, 8) recommend genetic testing in children with autism, specifically high resolution chromosome studies (karyotype) and DNA analysis for Fragile X in
the presence of mental retardation (or if mental retardation cannot be excluded) and/or dysmorphic features, as well as when there is a family history of Fragile X or undiagnosed mental retardation. The likelihood of a positive test in a child with high-functioning autism is low. Other testing may be considered based on clinical suspicion. For example, a methyl CpG-binding protein 2 (MECP2) analysis should be considered in females presenting with autistic features and regressions that are also consistent with Rett syndrome. The primary care physician may choose to refer the patient to a subspecialist (geneticist) for assistance with the etiologic work-up or the search for co-morbid conditions.

b. Metabolic Testing:
   i. The AAN, AAP and DDS recommend selective metabolic testing based on suggestive clinical and physical findings such as lethargy and cyclic vomiting with mild illnesses, early seizures, dysmorphic or coarse features, mental retardation or unknown results of newborn screen. Subspecialists such as a geneticist or pediatric neurologist may facilitate this work-up.

c. EEG:
   i. There is inadequate evidence to recommend an EEG study in all individuals with ASDs. The AAN, AAP and DDS recommend considering EEGs in children with clinical seizures or clinical signs that might represent seizures, as well as children with clear regression in social and communicative skills.

d. Neuroimaging:
   There is no clinical evidence to support the role of routine clinical neuroimaging in the diagnostic work-up of ASD’s, even in the presence of macrocephaly. The AAN, AAP and DDS recommend that screening on all children with ASDs is not necessary.

e. Other testing:
   The AAN finds that there is inadequate supporting evidence for hair analysis, celiac antibodies, allergy testing, immunologic or neurochemical abnormalities, micronutrients such as vitamin levels, intestinal permeability studies, stool analysis, urinary peptides, mitochondrial disorders, thyroid function tests, or erythrocyte glutathione peroxidase studies.

4. Experimental and Investigational Services that are not approved for the Assessment of ASD
   IEHP considers the following procedures and services experimental and investigational because the peer-reviewed medical literature DOES NOT support their use in the routine evaluation of children with possible ASD:
   a. Allergy testing (particularly food allergies for gluten, casein, candida and other
molds)
  b. Assessment of the immune status
  c. Erythrocyte glutathione peroxidase studies
  d. Event-related brain potentials
  e. Hair analysis for trace elements
  f. Intestinal permeability studies
  g. Neuroimaging such as CT, MRI, MRS, PET, SPECT and fMRI, even in the presence of macrocephaly (See IEHP UM Guidelines on “MRI Utilization and the Diagnosis of ADHD and Autism.”)
  h. Nutritional testing
  i. Provocative chelation tests for mercury
  j. Stool analysis
  k. Test for celiac antibodies
  l. Tests for micronutrients such as vitamin levels
  m. Tests for mitochondrial disorders including lactate and pyruvate
  n. Urinary peptides

D. Treatment:

Children with ASD have the same basic health care needs as children without disabilities and should receive the same preventive and health promoting services, including immunizations. These Members may also have unique health care needs related to their etiologic conditions or co-morbidities. Members can access medically necessary treatment services through IEHP.

1. Physical Therapy, Occupational Therapy, Speech Pathology and Audiological Services:

   a. When ASD or Developmental Delay is suspected and the clinical diagnosis is speech delay or global delay, the initial evaluation for physical therapy, occupational therapy, speech pathology and audiology are considered covered benefits.

   b. For Early Periodic, Screening, Diagnostic, and Treatment (EPSDT)-eligible children under age 21, Managed Medi-Cal Plans must provide a broader range of medically necessary services. 42 U.S.C. section 1396d(r) provides that EPSDT benefit includes “such other necessary health care, diagnostic services, treatment, and other measures described in [42 U.S.C. section 1396d(a)] to correct or ameliorate defects and physical and mental illnesses and conditions discovered by the screening services, whether or not such services or items are covered under the state plan” (42 U.S. Code 1396d(r)(5)).

   c. Pursuant to Title 22 CCR section 51340, speech therapy, occupational therapy, and physical therapy services are not subject to the benefit limitations set forth under Title 22 CCR section 51304. In addition, Managed Medi-Cal Plans are required to provide speech therapy, occupational therapy, and physical therapy services when medically necessary to correct or ameliorate defects discovered by the screening services, whether or not such services or items are covered under the state plan.
d. Where another entity—such as a Local Education Agency (LEA), Regional Center, or local governmental health program—has overlapping responsibility for providing services to a child under age 21, Managed Medi-Cal Plans must assess what level of medically necessary services the child requires, determine what level of service (if any) is being provided by the other entity, and then coordinate the provision of services with the other entity to ensure that Managed Medi-Cal Plans and another entity are not providing duplicative services. In any event, Managed Medi-Cal Plans have the primary responsibility to provide all medically necessary services including services which exceed the amount provided by LEAs, Regional Centers, or local governmental health programs. Managed Medi-Cal Plans should not rely on a LEA program, Regional Center, Child Health and Disability Prevention Program (CHDP), local governmental health program, or other entities as the primary provider of medically necessary services. The Managed Medi-Cal Plan is the primary provider of such medical services except for those services that have been expressly carved out.

2. Behavioral Health Treatment (BHT)
   
a. BHT Services are a covered Medi-Cal benefit pursuant to the Welfare and Institutions Code Section 14132.56. Behavioral health treatment services are evidence-based treatments that are proven to be effective in the treatment of ASD. BHT services teach skills through the use of behavioral observation and reinforcement, or through prompting to teach each step of a targeted behavior (California Department of Health Care Services 10, 11).
   
b. BHT services are administered by a California State Plan CMS approved Provider as defined by Health and Safety Code Section 1374.73(c) (3), in conjunction with an approved behavioral health treatment plan, and services must meet medical necessity as defined by Welfare and Institutions Code Section 1432(v).
   
c. Evidence-based BHT services include the following (National Autism Center, 23):
      
      i. Behavioral interventions
      ii. Cognitive behavioral intervention package
      iii. Comprehensive behavioral treatment for young children
      iv. Language training (production)
      v. Modeling
      vi. Natural teaching strategies
      vii. Parent/Guardian training
      viii. Peer training package
      ix. Pivotal response training
      x. Schedules
      xi. Scripting
      xii. Self-management
      xiii. Social Skills Package
      xiv. Story based intervention
d. In order to be eligible for BHT services (California Department of Health Care Services, 10), the following criteria applies:
   i. Be under 21 years of age
   ii. Have a diagnosis of ASD based upon completion of a CDE (For individuals under three years of age, a rule out or provisional diagnosis is acceptable to receive BHT services)
   iii. Have a recommendation from a licensed physician and surgeon or a licensed psychologist that evidence-based BHT services are medically necessary
   iv. Be medically stable; and
   v. Be without a need for 24-hour medical/nursing monitoring or procedures provided in a hospital or intermediate care facility for person with intellectual disabilities (ICF/ID).

3. Other Covered Services:
   a. The following services may be covered if considered medically necessary:
      i. Medical management of co-morbidities
      ii. Periodic monitoring for elevated blood lead level concentrations for Members with pica or mouthing behaviors or Members living in a high risk environment Psychopharmacology

4. Services Not Approved for the Treatment of ASD
   a. IEHP considers the following procedures and services experimental and investigational because the peer-reviewed medical literature DOES NOT support their use in the routine treatment of children with possible ASD
      i. Anti-fungal medications (i.e. ketoconazole, fluconazole, nystatin, metronidazole)
      ii. Anti-viral medications (i.e. amantadine, oseltamavir, acyclovit, valacyclovir, famcycolvir, Isoprinosine)
      iii. Auditory integration therapy
      iv. Chelation therapy
      v. Cognitive rehabilitation
      vi. Elimination diets (i.e. gluten/casein-free diet)
      vii. Herbal remedies (i.e. plant tannins, garlic, astragalus)
      viii. Immune globulin infusion
      ix. Nutritional supplements (i.e. megavitamins, high-dose pyridoxine and magnesium)
      x. Manipulative therapies
      xi. Secretin infusion
      xii. Systemic hyperbaric oxygen therapy
      xiii. Tomatis sound therapy
      xiv. Vision therapy
      xv. Vitamins and minerals (i.e. zinc, manganese, selenium)
b. In addition, the following services do not meet DHCS criteria or qualify as Medi-Cal covered BHT services in the treatment of children with a possible diagnosis of ASD (California Department of Health Care Services, 10):
   i. Services rendered when continued clinical benefit is not expected
   ii. Respite, day care, custodial care or educational services
   iii. Reimbursement of a parent, legal guardian, or legally responsible person for costs associated with the participation under the behavioral health treatment plan
   iv. Vocationally or recreationally based treatment services
   v. Services, supplies, or procedures performed in a non-conventional setting including, but not limited to, resorts, spas, and camps
   vi. Services rendered by a parent, legal guardian, or legally responsible person
   vii. Services that are not evidence-based practices. There are 13 interventions that per the National Autism Center have little or no evidence in the scientific literature that would draw a firm conclusion about their effectiveness with individuals with ASD (National Autism Center, 13) and include the following:
      • Animal-assisted therapy (ie, Hippotherapy/Equestrian therapy)
      • Auditory integration training
      • Concept mapping
      • DIR/Floor Time
      • Facilitated communication
      • Gluten-free/Casei-free diet
      • Movement-based intervention
      • Sensory intervention package
      • Shock therapy
      • Social behavioral learning strategy
      • Social cognition intervention
      • Social thinking intervention

5. Carve Out Services:

   Behavioral health services related to the treatment of Tier 3 severely mentally impaired individuals is carved out to the county mental health departments for ongoing services.

Rationale:

Autism Spectrum Disorder (ASD) refers to a group of neurodevelopmental disorders previously referred to separately as early infantile autism, childhood autism, Kanner’s autism, high-functioning autism, atypical autism, pervasive developmental disorder not otherwise specified, childhood disintegrative disorder, and Asperger’s disorder. These conditions are now all called ASD (American Psychiatric Association, 6). ASD is a developmental disorder characterized by
problems with verbal and non-verbal communication, impaired social interaction and unusual or repetitive activities. Symptoms are present in early childhood and limit or impair everyday functioning. According to new data from the Centers of Disease Control, ASD affects approximately 1 in 68 children in the United States. This prevalence rate represents a 30 percent increase in the past two years (Center for Disease Control, 12). In California, the rate of those diagnosed with an ASD has more than quadrupled, from 7,487 cases in 1996 to 32,809 in 2006. As the number of children diagnosed increases, so does the demand for additional services.

Studies show that even though parents may feel that something is wrong with their child by 18 months of age and usually seek medical assistance by the time the child is 2, the average age of diagnosis of autism is about 6 years. The diagnosis of ASD is usually not made until 2-3 years after the symptoms are initially recognized because there are concerns about labeling the child or giving the child an incorrect diagnosis. Also, the pathway from initial concern to diagnosis is often complex and time-consuming. Identifying children with ASD as early as possible is important because intensive intervention in the preschool years is a key factor to improving outcomes for most of these children. Early diagnosis of ASD with prompt intervention leads to earlier educational and family support, as well as appropriate medical care and treatment.

**Effective Date:** May 27, 2009  
**Reviewed Annually:** November 9, 2016

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<td>November 10, 2014</td>
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**Bibliography:**


Disclaimer

IEHP Clinical Authorization Guidelines (CAG) are developed to assist in administering plan benefits, they do not constitute a description of plan benefits. The Clinical Authorization Guidelines (CAG) express IEHP's determination of whether certain services or supplies are medically necessary, experimental and investigational, or cosmetic. IEHP has reached these conclusions based upon a review of currently available clinical information (including clinical outcome studies in the peer-reviewed published medical literature, regulatory status of the technology, evidence-based guidelines of public health and health research agencies, evidence-based guidelines and positions of leading national health professional organizations, views of physicians practicing in relevant clinical areas, and other relevant factors). IEHP makes no representations and accepts no liability with respect to the content of any external information cited or relied upon in the Clinical Authorization Guidelines (CAG). IEHP expressly and solely reserves the right to revise the Clinical Authorization Guidelines (CAG), as clinical information changes.
These guidelines represent a consensus by the American Academy of Pediatrics (AAP) and Bright Futures. The AAP continues to emphasize the great importance of continuing care in children of all ages to support the health and well-being of children. Refer to the specific guidance by age as listed in Bright Futures guidelines (Hagan JF, Shaw JS, Duncan PM, eds. Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents: 3rd ed. Elk Grove Village, Ill: American Academy of Pediatrics; 2006).

The recommendations in this document may not indicate an exclusive course of treatment or standard of medical care. Variations, taking into account individual circumstances, may be appropriate.
Changes made October 2015

- **Vision Screening**: The routine screening at age 18 has been changed to a risk assessment.
- Footnote 7 has been updated to read, "A visual acuity screen is recommended at ages 4 and 5 years, as well as in cooperative 3 year olds. Instrument based screening may be used to assess risk at ages 12 and 24 months, in addition to the well visits at 3 through 5 years of age. See 2016 AAP statement, "Visual System Assessment in Infants, Children, and Young Adults by Pediatricians" (http://pediatrics.aappublications.org/content/137/1/1.51) and "Procedures for Evaluation of the Visual System by Pediatricians" (http://pediatrics.aappublications.org/content/137/1/1.52).

Changes made May 2015

- **Oral Health**: A subheading has been added for fluoride varnish, with a recommendation from 6 months through 5 years.
- Footnote 25 wording has been edited and also includes reference to the 2014 clinical report, “Fluoride Use in Caries Prevention in the Primary Care Setting” (http://pediatrics.aappublications.org/content/134/3/626) and 2014 policy statement, "Maintaining and Improving the Oral Health of Young Children" (http://pediatrics.aappublications.org/content/134/6/1224.full).
- Footnote 26 has been added to the new fluoride varnish subheading: See USPSTF recommendations (http://www.uspreventiveservicestaskforce.org/uspstf/uspsdnch.htm). Once teeth are present, fluoride varnish may be applied to all children every 3-6 months in the primary care or dental office. Indications for fluoride use are noted in the 2014 AAP clinical report "Fluoride Use in Caries Prevention in the Primary Care Setting" (http://pediatrics.aappublications.org/content/134/3/626).

Changes made March 2014

- **Alcohol and Drug Use Assessment**: Information regarding a recommended screening tool (CRAFFT) was added.
- **Depression**: Screening for depression at ages 11 through 21 has been added, along with suggested screening tools.

Changes to Procedures

- **Dyslipidemia screening**: An additional screening between 9 and 11 years of age has been added. The reference has been updated to the AAP-endorsed National Heart Blood and Lung Institute policy (http://www.nhlbi.nih.gov/guidelines/cvd_ped/index.htm).
- **Hematocrit or hemoglobin**: A risk assessment has been added at 15 and 30 months. The reference has been updated to the current AAP policy (http://pediatrics.aappublications.org/content/126/5/1040.full).
- **STI/HIV screening**: A screen for HIV has been added between 16 and 18 years. Information on screening adolescents for HIV has been added in the footnotes. STI screening now references recommendations made in the AAP Red Book. This category was previously titled "STI Screening."
- **Cervical dysplasia**: Adolescents should no longer be routinely screened for cervical dysplasia until age 21. Indications for pelvic exams prior to age 21 are noted in the 2010 AAP statement "Gynecologic Examination for Adolescents in the Pediatric Office Setting" (http://pediatrics.aappublications.org/content/126/3/583.full).
- **Critical Congenital Heart Disease**: Screening for critical congenital heart disease using pulse oximetry should be performed in newborns, after 24 hours of age, before discharge from the hospital, per the 2011 AAP statement, "Endorsement of Health and Human Services Recommendation for Pulse Oximetry Screening for Critical Congenital Heart Disease" (http://pediatrics.aappublications.org/content/128/1/190.full).

See www.aap.org/periodicityschedule for additional updates made to footnotes and references in March 2014.
Modified Checklist for Autism in Toddlers, Revised with Follow-Up

(M-CHAT-R/F)TM

Acknowledgement: We thank Joaquin Fuentes, M.D. for his work in developing the flow chart format used in this document.

For more information, please see www.mchatscreen.com
or contact Diana Robins at DianaLRobins@gmail.com
Permissions for Use of the M-CHAT-R/F™


The M-CHAT-R/F is a copyrighted instrument, and use of the M-CHAT-R/F must follow these guidelines:

1. Reprints/reproductions of the M-CHAT-R must include the copyright at the bottom (© 2009 Robins, Fein, & Barton). No modifications can be made to items, instructions, or item order without permission from the authors.
2. The M-CHAT-R must be used in its entirety. Evidence indicates that any subsets of items do not demonstrate adequate psychometric properties.
3. Parties interested in reproducing the M-CHAT-R/F in print (e.g., a book or journal article) or electronically for use by others (e.g., as part of digital medical record or other software packages) must contact Diana Robins to request permission (DianaLRobins@gmail.com).
4. If you are part of a medical practice, and you want to incorporate the first stage M-CHAT-R questions into your own practice's electronic medical record (EMR), you are welcome to do so. However, if you ever want to distribute your EMR page outside of your practice, please contact Diana Robins to request a licensing agreement.

Instructions for Use

The M-CHAT-R can be administered and scored as part of a well-child care visit, and also can be used by specialists or other professionals to assess risk for ASD. The primary goal of the M-CHAT-R is to maximize sensitivity, meaning to detect as many cases of ASD as possible. Therefore, there is a high false positive rate, meaning that not all children who score at risk will be diagnosed with ASD. To address this, we have developed the Follow-Up questions (M-CHAT-R/F). Users should be aware that even with the Follow-Up, a significant number of the children who screen positive on the M-CHAT-R will not be diagnosed with ASD; however, these children are at high risk for other developmental disorders or delays, and therefore, evaluation is warranted for any child who screens positive. The M-CHAT-R can be scored in less than two minutes. Scoring instructions can be downloaded from http://www.mchatscreen.com. Associated documents will be available for download as well.

Scoring Algorithm

For all items except 2, 5, and 12, the response “NO” indicates ASD risk; for items 2, 5, and 12, “YES” indicates ASD risk. The following algorithm maximizes psychometric properties of the M-CHAT-R:

LOW-RISK: Total Score is 0-2; if child is younger than 24 months, screen again after second birthday. No further action required unless surveillance indicates risk for ASD.

MEDIUM-RISK: Total Score is 3-7; Administer the Follow-Up (second stage of M-CHAT-R/F) to get additional information about at-risk responses. If M-CHAT-R/F score remains at 2 or higher, the child has screened positive. Action required: refer child for diagnostic evaluation and eligibility evaluation for early intervention. If score on Follow-Up is 0-1, child has screened negative. No further action required unless surveillance indicates risk for ASD. Child should be rescreened at future well-child visits.

HIGH-RISK: Total Score is 8-20; It is acceptable to bypass the Follow-Up and refer immediately for diagnostic evaluation and eligibility evaluation for early intervention.
### M-CHAT-R™

Please answer these questions about your child. Keep in mind how your child usually behaves. If you have seen your child do the behavior a few times, but he or she does not usually do it, then please answer **no**. Please circle **yes** or **no** for every question. Thank you very much.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>1. If you point at something across the room, does your child look at it?</td>
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<td><strong>(FOR EXAMPLE, if you point at a toy or an animal, does your child look</strong></td>
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<td><strong>at the toy or animal?)</strong></td>
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<tr>
<td>2. Have you ever wondered if your child might be deaf?</td>
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<td>3. Does your child play pretend or make-believe? (<strong>FOR EXAMPLE, pretend</strong></td>
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<td><strong>to drink from an empty cup, pretend to talk on a phone, or pretend to</strong></td>
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<td><strong>feed a doll or stuffed animal?)</strong></td>
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<td>4. Does your child like climbing on things? (<strong>FOR EXAMPLE, furniture,</strong></td>
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<td><strong>playground equipment, or stairs)</strong></td>
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<td>5. Does your child make <strong>unusual</strong> finger movements near his or her eyes?</td>
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<td><strong>(FOR EXAMPLE, does your child wiggle his or her fingers close to his</strong></td>
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<td><strong>or her eyes?)</strong></td>
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<tr>
<td>6. Does your child point with one finger to ask for something or to get help?</td>
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<td><strong>(FOR EXAMPLE, pointing to a snack or toy that is out of reach)</strong></td>
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<tr>
<td>7. Does your child point with one finger to show you something interesting?</td>
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<td><strong>(FOR EXAMPLE, pointing to an airplane in the sky or a big truck in the road)</strong></td>
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<td>8. Is your child interested in other children? (<strong>FOR EXAMPLE, does your child watch other children, smile at them, or go to them?)</strong></td>
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<td>9. Does your child show you things by bringing them to you or holding them up for you to see – not to get help, but just to share? (<strong>FOR EXAMPLE, showing you a flower, a stuffed animal, or a toy truck</strong></td>
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<tr>
<td>10. Does your child respond when you call his or her name? (<strong>FOR EXAMPLE, does he or she look up, talk or babble, or stop what he or she is doing when you call his or her name?)</strong></td>
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<tr>
<td>11. When you smile at your child, does he or she smile back at you?</td>
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<tr>
<td>12. Does your child get upset by everyday noises? (<strong>FOR EXAMPLE, does your child scream or cry to noise such as a vacuum cleaner or loud music?)</strong></td>
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<td>13. Does your child walk?</td>
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<td>14. Does your child look you in the eye when you are talking to him or her, playing with him or her, or dressing him or her?</td>
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</tbody>
</table>

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M-CHAT-R Follow-Up (M-CHAT-R/F)™

Permissions for Use

The Modified Checklist for Autism in Toddlers, Revised, with Follow-Up (M-CHAT-R/F; Robins, Fein, & Barton, 2009) is designed to accompany the M-CHAT-R. The M-CHAT-R/F may be downloaded from www.mchatscreen.com.

The M-CHAT-R/F is a copyrighted instrument, and use of this instrument is limited by the authors and copyright holders. The M-CHAT-R and M-CHAT-R/F may be used for clinical, research, and educational purposes. Although we are making the tool available free of charge for these uses, this is copyrighted material and it is not open source. Anyone interested in using the M-CHAT-R/F in any commercial or electronic products must contact Diana L. Robins at DianaLRobins@gmail.com to request permission.

Instructions for Use

The M-CHAT-R/F is designed to be used with the M-CHAT-R; the M-CHAT-R is valid for screening toddlers between 16 and 30 months of age, to assess risk for autism spectrum disorder (ASD). Users should be aware that even with the Follow-Up, a significant number of the children who fail the M-CHAT-R will not be diagnosed with ASD; however, these children are at risk for other developmental disorders or delays, and therefore, follow-up is warranted for any child who screens positive.

Once a parent has completed the M-CHAT-R, score the instrument according to the instructions. If the child screens positive, select the Follow-Up items based on which items the child failed on the M-CHAT-R; only those items that were originally failed need to be administered for a complete interview.

Each page of the interview corresponds to one item from the M-CHAT-R. Follow the flowchart format, asking questions until a PASS or FAIL is scored. Please note that parents may report “maybe” in response to questions during the interview. When a parent reports “maybe,” ask whether most often the answer is “yes” or “no” and continue the interview according to that response. In places where there is room to report an “other” response, the interviewer must use his/her judgment to determine whether it is a passing response or not.

Score the responses to each item on the M-CHAT-R/F Scoring Sheet (which contains the same items as the M-CHAT-R, but Yes/No has been replaced by Pass/Fail). The interview is considered to be a screen positive if the child fails any two items on the Follow-Up. If a child screens positive on the M-CHAT-R/F, it is strongly recommended that the child is referred for early intervention and diagnostic testing as soon as possible. Please note that if the healthcare provider or parent has concerns about ASDs, children should be referred for evaluation regardless of the score on the M-CHAT-R or M-CHAT-R/F.
**M-CHAT-R Follow-Up™ Scoring Sheet**

Please note: Yes/No has been replaced with Pass/Fail

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>If you point at something across the room, does your child look at it? (<strong>For Example</strong>, if you point at a toy or an animal, does your child look at the toy or animal?)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>2.</td>
<td>Have you ever wondered if your child might be deaf?</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>3.</td>
<td>Does your child play pretend or make-believe? (<strong>For Example</strong>, pretend to drink from an empty cup, pretend to talk on a phone, or pretend to feed a doll or stuffed animal)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>4.</td>
<td>Does your child like climbing on things? (<strong>For Example</strong>, furniture, playground equipment, or stairs)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>5.</td>
<td>Does your child make unusual finger movements near his or her eyes? (<strong>For Example</strong>, does your child wiggle his or her fingers close to his or her eyes?)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>6.</td>
<td>Does your child point with one finger to ask for something or to get help? (<strong>For Example</strong>, pointing to a snack or toy that is out of reach)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>7.</td>
<td>Does your child point with one finger to show you something interesting? (<strong>For Example</strong>, pointing to an airplane in the sky or a big truck in the road)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>8.</td>
<td>Is your child interested in other children? (<strong>For Example</strong>, does your child watch other children, smile at them, or go to them?)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>9.</td>
<td>Does your child show you things by bringing them to you or holding them up for you to see – not to get help, but just to share? (<strong>For Example</strong>, showing you a flower, a stuffed animal, or a toy truck)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>10.</td>
<td>Does your child respond when you call his or her name? (<strong>For Example</strong>, does he or she look up, talk or babble, or stop what he or she is doing when you call his or her name?)</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>11.</td>
<td>When you smile at your child, does he or she smile back at you?</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>12.</td>
<td>Does your child get upset by everyday noises? (<strong>For Example</strong>, a vacuum cleaner or loud music)</td>
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<td>Does your child look you in the eye when you are talking to him or her, playing with him or her, or dressing him or her?</td>
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<td>Pass</td>
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Total Score: _______
1. If you point at something across the room, does ___________ look at it?

**Yes**

Please give me an example of how he/she will respond if you point at something *(If parent does not give a PASS example below, ask each individually.)*

**FAIL**

If you point at something, what does your child typically do?

**PASS** examples

- Looks at object
- Points to object
- Looks and comments on object
- Looks if parent points and says “look!”

**FAIL** examples

- Ignores parent
- Looks around room randomly
- Looks at parent’s finger

Which one does he/she do most often?

**PASS** only to PASS example(s)

**Yes** to examples borth from PASS and FAIL

**FAIL** only to FAIL example(s)

Most often is PASS example

Most often is FAIL example

PASS

FAIL
2. You reported that you have wondered if your child is deaf. What led you to wonder that?

Does he/she…

- Often ignore sounds? Yes ☐ No ☐
- Often ignore people? Yes ☐ No ☐

No to both

PASS

Yes to either

FAIL

Has your child’s hearing been tested?

Yes ☐ No ☐

ALSO ASK FOR ALL CHILDREN:

What were the results of the hearing test? (choose one):
- Hearing in normal range ☐
- Hearing below normal ☐
- Results inconclusive or not definitive ☐

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3. Does __________ play pretend or make-believe

Yes

Please give me an example of his/her pretend play. (If parent does not give a PASS example below, ask each individually.)

No

Does he/she ever...

- Present to drink from a toy cup?
- Pretend to eat from a toy spoon or fork?
- Pretend to talk on the telephone?
- Pretend to feed a doll or stuffed animal with real or imaginary food?
- Push a car as if it is going along a pretend road?
- Pretend to be a robot, an airplane, a ballerina, or any other favorite character?
- Put a toy pot on a pretend stove?
- Stir imaginary food?
- Put an action figure or doll into a car or truck as if it is the driver or passenger?
- Pretend to vacuum the rug, sweep the floor, or the mow lawn?
- Other (describe)

| Yes □ No □ | Yes □ No □ | Yes □ No □ | Yes □ No □ | Yes □ No □ | Yes □ No □ | Yes □ No □ | Yes □ No □ |

Yes to any

PASS

No to all

FAIL

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4. Does ________ like climbing on things?

Yes

Please give me an example of something he/she enjoys climbing on. (If parent does not give a PASS example below, ask each individually.)

No

Yes to any of the above

No to all

PASS

FAIL

Stairs? Yes □ No □
Chairs? Yes □ No □
Furniture? Yes □ No □
Playground equipment? Yes □ No □
5. Does ________ make unusual finger movements near his/her eyes?

Yes

Please describe these movements (If parent does not give a PASS example below, ask each individually.)

No

PASS

Does he/she ever...
(Below are PASS examples)

Look at hands? Yes □ No □
Move fingers when playing peek-a-boo? Yes □ No □

Does he/she ever...
(Below are FAIL examples)

Wiggle his/her fingers near his/her eyes? Yes □ No □
Hold his/her hands up close to his/her eyes? Yes □ No □
Hold his/her hands off to the side of his/her eyes? Yes □ No □
Flap his/her hands near his/her face? Yes □ No □
Other (describe)
____________________________________________________
____________________________________________________

Yes to any of the above

No to all of the above

PASS

Yes to any of the above

Does this happen more than twice a week?

No

FAIL

Yes
6. Does your child point with one finger to ask for something or to get help?

Yes

PASS

No

If there is something your child wants that is out of reach, such as a snack or toy that is out of reach, how does he/she get it? *(If parent does not give a PASS example below, ask each individually.)*

Does he/she...

- Reach for the object with his/her whole hand?  
  Yes □ No □
- Lead you to the object?  
  Yes □ No □
- Try to get the object for him/herself?  
  Yes □ No □
- Ask for it using words or sounds?  
  Yes □ No □

Yes to any of the above

If you said “Show me”, would he/she point at it?

Yes

PASS

No

FAIL

No to all of the above
7. * If the interviewer just asked #6, begin here: We just talked about pointing to ask for something, 
ASK ALL → Does your child point with one finger just to show you something interesting?

Yes

Please give me an example something he/she might point at to show you. (If parent does not give a PASS example below, ask each individually.)

Does your child ever want you to see something interesting such as….

- An airplane in the sky? [Yes □ No □]
- A truck on the road? [Yes □ No □]
- A bug on the ground? [Yes □ No □]
- An animal in the yard? [Yes □ No □]

How does your child draw your attention to it? Would he/she point with one finger?

Yes to any

Yes

Is this to show their interest, not to get help?

No → FAIL

PASS

No

FAIL

No to all of the above
8. Is __________ interested in other children?

Yes

Is he/she interested in children who are not his/her brother or sister?

Yes

When you are at the playground or supermarket, does your child usually respond to other children?

Yes

Does he/she respond to other children more than half of the time?

Yes

PASS

FAIL

No

No to all of the above

Yes to any of the above

Does he/she respond to other children more than half of the time?

Yes

PASS

FAIL

No

No
9. Does ________ show you things by bringing them to you or holding them up for you to see? Not just to get help, but to share?

Yes

Please give me an example of something he/she might bring to show you or hold up for you to see. (If parent does not give a PASS example below, ask each individually.)

No

Does your child sometimes bring you…

A picture or toy just to show you? Yes □ No □
A drawing he/she has done? Yes □ No □
A flower he/she has picked? Yes □ No □
A bug he/she has found in the grass? Yes □ No □
A few blocks he/she has put together? Yes □ No □
Other (describe): ________________________________

Yes □ No □

Yes to any of the above

Is this sometimes just to show you, not to get help?

Yes

PASS

No

FAIL

Yes □ No □

No to all of the above

Yes □ No □

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10. Does ________ respond when you call his/her name?

Yes

Please give me an example of how he/she responds when you call his/her name. (If parent does not give a PASS example below, ask each individually.)

Yes to both PASS and FAIL examples

FAIL

Yes only to FAIL example(s).

Yes to both PASS and FAIL examples

PASS response

FAIL response

PASS

Which one does he/she do most often?

Yes only to PASS example(s).
11. When you smile at ____________, does he/she smile back at you?

Yes

PASS

No

What makes ____________ smile? (If parent does not give a PASS example below, ask each individually.)

Does your child…
(Below are PASS examples)

- Smile when you smile?
  Yes □ No □
- Smile when you enter the room?
  Yes □ No □
- Smile when you return from being away?
  Yes □ No □

Does he/she ever…
(Below are FAIL examples)

- Is your child always smiling?
  Yes □ No □
- Does your child smile at a favorite toy or activity?
  Yes □ No □
- Does your child smile randomly or at nothing in particular?
  Yes □ No □

Yes only to PASS example(s)

Yes to both PASS and FAIL examples

Which one does he/she do most often?

PASS

PASS response

FAIL

FAIL response

Yes only to FAIL example(s)
12. Does ________ get upset by everyday noises?

Yes

Does your child have a negative reaction to the sound of...

A washing machine?  Yes □ No □
Babies crying?  Yes □ No □
Vacuum cleaner?  Yes □ No □
Hairdryer?  Yes □ No □
Traffic?  Yes □ No □
Babies squealing or screeching?  Yes □ No □
Loud music?  Yes □ No □
Telephone/ doorbell ringing?  Yes □ No □
Noisy places such as a supermarket or restaurant?  Yes □ No □
Other (describe):  Yes □ No □

PASS

How does your child react those noises? (If parent does not give a PASS example below, ask each individually.)

Yes to two or more

No

Does your child...

(Calmdly cover his/her ears?  Yes □ No □  )
Tell you that he/she does not like the noise?  Yes □ No □

PASS response

Yes only to PASS example(s)

FAIL response

Yes only to FAIL example(s)

Which one does he/she do most often?

PASS

FAIL

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13. Does ________ walk?

- Yes
  - Does he/she walk without holding on to anything?
    - Yes
      - PASS
    - No
      - FAIL

- No
14. Does ________ look you in the eye when you are talking to him/her, playing with him/her, or changing him/her?

Yes

Please give me an example of when he/she looks you in the eye. (If parent does not give a PASS example below, ask each individually.)

No

Yes

No

PASS

Does he/she look you in the eye...

- When he/she needs something? Yes □ No □
- When you are playing with him/her? Yes □ No □
- During feeding? Yes □ No □
- During diaper changes? Yes □ No □
- When you are reading him/her a story? Yes □ No □
- When you are talking to him/her? Yes □ No □

Yes to two or more

PASS

Yes only to one

Does your child look you in the eye every day?

Yes

No

FAIL

No to all

On a day when you are together all day, does he/she look you in the eye at least 5 times?

Yes

No

FAIL

PASS

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15. Does __________ try to copy what you do?

Yes

Please give me an example of something he/she would try to copy. (If parent does not give a PASS example below, ask each individually.)

No

Does your child try to copy you if you...

- Stick out your tongue? Yes □ No □
- Make a funny sound? Yes □ No □
- Wave good bye? Yes □ No □
- Clap your hands? Yes □ No □
- Put your fingers to your lips to signal “Shhh”? Yes □ No □
- Blow a kiss? Yes □ No □
- Other (describe): Yes □ No □

Yes to two or more

PASS

Yes to one or none

FAIL

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16. If you turn your head to look at something, does _______ look around to see what you are looking at?

Yes

PASS

No

What does he/she do when you turn to look at something? (If parent does not give a PASS example below, ask each individually.)

Does your child...
(Below are PASS responses)

Look toward the thing you are looking at? Yes □ No □
Point toward the thing you are looking at? Yes □ No □
Look around to see what you are looking at? Yes □ No □

Does your child...
(Below are FAIL responses)

Ignore you? Yes □ No □
Look at your face? Yes □ No □

Yes only to PASS example(s)

Yes to both PASS and FAIL responses

Which one does he/she do most often?

PASS response

FAIL response

PASS

FAIL
17. Does _________ try to get you to watch him/her?

Yes

Please give me an example of how he/she would try to get you to watch him/her. *(If parent does not give a PASS example below, ask each individually.)*

No

**Does he/she…**

Say “Look!” or “Watch me!”? Yes □ No □

Babble or make a noise to get you to watch what he/she is doing? Yes □ No □

Look at you to get praise or comment? Yes □ No □

Keep looking to see if you are looking? Yes □ No □

Other (describe): Yes □ No □

---

Yes to any

PASS

Yes to none

FAIL

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18. Does __________ understand when you tell him/her to do something?

Yes

Please give me an example of how you know he/she understands you.

If example does not indicate that child can understand a simple command without nonverbal cues

No

When the situation gives him/her a clue, can he/she follow a command? For example when you are dressed to go out and you tell him/her to get his/her shoes, does he/she understand?

Yes

When the situation does not give any clues, can he/she follow a command? For example…

(ask until you get a yes or use all examples)

(1) If you say, “Show me your shoe” without pointing, making gestures, or giving hints (when you are not going out or getting dressed), does your child show you his/her shoe? Yes □ No □

(2) If you say, “Bring me the blanket” or ask for another object without pointing, making gestures, or giving hints, does your child bring it to you? Yes □ No □

(3) If you say, “Put the book on the chair” without pointing, making gestures, or giving any other hints, does your child put the book on the chair? Yes □ No □

FAIL

No to all

Yes to any

PASS

No

If it is dinnertime and food is on the table, and you tell the child to sit down, will he/she come sit at the table?

FAIL

No

PASS

Yes

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19. If something new happens, does _________ look at your face to see how you feel about it?

- Yes
- No

**PASS**

If your child hears a strange or scary noise, will he/she look at you before responding?

- Yes
- No

**PASS**

Does your child look at you when someone new approaches?

- Yes
- No

Does your child look at you when he/she is faced with something unfamiliar or a little scary?

- Yes
- No

**PASS**

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20. Does ___________ like movement activities?

Yes

Does he/she enjoy being bounced or swung?

Yes

PASS

No

Yes

No

When you swing or bounce him/her, how does he/she react?
(If parent does not give an example below, ask each individually.)

Does your child…

Laugh or smile?
Talk or babble?
Request more by holding out his/her arms?
Other (describe):

Yes □ No □
Yes □ No □
Yes □ No □
Yes □ No □

Yes to any specific examples (or if “other” is a positive response)

PASS

No to all

FAIL
# Selected Level 1 and Level 2 ASD Screening Measures*

<table>
<thead>
<tr>
<th>Screening Tool</th>
<th>Ages</th>
<th>Format (Number of Items)</th>
<th>Time to Complete (min)</th>
<th>Reported Sensitivity</th>
<th>Reported Specificity</th>
<th>Selected Key References</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checklist for Autism in Toddlers (CHAT)</td>
<td>18–24 mo</td>
<td>Parent interview or questionnaire and interactive (parent 9; clinician 5)</td>
<td>5</td>
<td>0.18–0.38; 0.65; 0.98–1.0</td>
<td>1.0;</td>
<td>Baron-Cohen et al, Baron-Cohen et al, Baird et al, Scambler et al</td>
<td>Download: <a href="http://www.autismresearchcentre.com">www.autismresearchcentre.com</a></td>
</tr>
<tr>
<td>Checklist for Autism in Toddlers (CHAT), Denver Modifications</td>
<td>18–24 mo</td>
<td>Parent interview or questionnaire and interactive (parent 9; clinician 5)</td>
<td>5</td>
<td>0.85; 1.0;</td>
<td></td>
<td>Scambler et al</td>
<td>CHAT scoring modifications; available in Scambler et al</td>
</tr>
<tr>
<td>Checklist for Autism in Toddlers-23 (CHAT-23)</td>
<td>16–86 mo but all had mental ages of 18–24 mo</td>
<td>Parent interview or questionnaire and interactive (parent 23; clinician 5)</td>
<td>10</td>
<td>Part A: 0.84–0.93; Part B: 0.74;</td>
<td>Part A: 0.77–0.85; Part B: 0.91;</td>
<td>Wong et al</td>
<td>Combination of M-CHAT and CHAT items; protocol available in Wong et al</td>
</tr>
<tr>
<td>Childhood Asperger Syndrome Test (CAST)</td>
<td>4–11 y</td>
<td>Questionnaire completed by parent (37)</td>
<td>10</td>
<td>0.88–1.0; 0.97–0.98;</td>
<td></td>
<td>Scott et al, Williams et al, Williams et al</td>
<td>Download: <a href="http://www.autismresearchcentre.com">www.autismresearchcentre.com</a></td>
</tr>
<tr>
<td>Modified Checklist for Autism in Toddlers (M-CHAT)</td>
<td>16–48 mo</td>
<td>Questionnaire completed by parent (23)</td>
<td>5–10</td>
<td>0.85; 0.93;</td>
<td></td>
<td>Dumont-Mathieu and Fein, Robins et al</td>
<td>Download: <a href="http://www.dbpeds.org/media/mchat.pdf">www.dbpeds.org/media/mchat.pdf</a> or <a href="http://www.firstsigns.org/downloads/m-chat_PDF">www.firstsigns.org/downloads/m-chat_PDF</a></td>
</tr>
<tr>
<td>Pervasive Developmental Disorders Screening Test-II, Primary Care Screener (PDDST-II PCS)</td>
<td>18–48 mo</td>
<td>Questionnaire completed by parent (22)</td>
<td>10–15</td>
<td>0.92; 0.91;</td>
<td></td>
<td>Siegel</td>
<td>Purchase: PsychCorp/Harcourt Assessment <a href="http://www.harcourtassessment.com">www.harcourtassessment.com</a></td>
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<tr>
<td><strong>Level 2</strong></td>
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<tr>
<td>Asperger Syndrome Diagnostic Scale (ASDS)</td>
<td>5–18 y</td>
<td>Questionnaire completed by parent, teacher, or clinician (50)</td>
<td>10–15</td>
<td>0.85;</td>
<td></td>
<td>Myles et al, Campbell</td>
<td>Purchase: Pro-Ed <a href="http://www.proedinc.com">www.proedinc.com</a></td>
</tr>
<tr>
<td>Autism Behavior Checklist (ABC)</td>
<td>18 mo and older</td>
<td>Behavioral checklist completed by interviewer (57)</td>
<td>10–20</td>
<td>0.38–0.58; 0.76–0.97;</td>
<td></td>
<td>Krug et al</td>
<td>Purchase: Pro-Ed <a href="http://www.proedinc.com">www.proedinc.com</a> as part of the Autism Screening Instrument for Educational Planning (ASIEP-2)</td>
</tr>
<tr>
<td>Autism Spectrum Quotient (AQ)— Adolescent Version</td>
<td>11–16 y</td>
<td>Questionnaire completed by parent (50)</td>
<td>15</td>
<td>0.89; 1.0;</td>
<td></td>
<td>Baron-Cohen et al</td>
<td>Download: <a href="http://www.autismresearchcentre.com">www.autismresearchcentre.com</a></td>
</tr>
<tr>
<td>Autism Spectrum Screening Questionnaire (ASSQ)</td>
<td>6–17 y</td>
<td>Questionnaire completed by parent (27)</td>
<td>10</td>
<td>0.62–0.82; (parent) 0.65–0.70; (teacher)</td>
<td></td>
<td>Ehlers et al</td>
<td>Questions are included as an appendix in Ehlers et al</td>
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<tr>
<td>Childhood Autism Rating Scale (CARS)</td>
<td>Older than 2 y</td>
<td>Behavioral checklist completed by trained interviewer/observer (15)</td>
<td>Variable</td>
<td>0.92–0.98; 0.94; 0.85;</td>
<td></td>
<td>Eaves and Milner, Perry et al, Schopler et al, Sevin et al</td>
<td>Purchase: Western Psychological Services <a href="http://www.wpspublish.com">www.wpspublish.com</a></td>
</tr>
<tr>
<td>Gilliam Asperger’s Disorder Scale (GADS)</td>
<td>3–22 y</td>
<td>Questionnaire completed by parent, teacher, or clinician (32)</td>
<td>10</td>
<td></td>
<td></td>
<td>Gilliam, Campbell</td>
<td>Purchase: Pro-Ed <a href="http://www.proedinc.com">www.proedinc.com</a></td>
</tr>
<tr>
<td>Screening Tool</td>
<td>Ages</td>
<td>Format (Number of Items)</td>
<td>Time to Complete (min)</td>
<td>Reported Sensitivity</td>
<td>Reported Specificity</td>
<td>Selected Key References</td>
<td>Availability</td>
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<td><strong>Level 2 continued</strong></td>
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<tr>
<td>Krug Asperger’s Disorder Index (KADI)</td>
<td>6–21 y</td>
<td>Questionnaire completed by parent or clinician (32)</td>
<td>15–20</td>
<td>0.78</td>
<td>0.94</td>
<td>Krug and Arick, Campbell</td>
<td>Purchase: Pro-Ed <a href="http://www.proedinc.com">www.proedinc.com</a></td>
</tr>
<tr>
<td>Pervasive Developmental Disorders Screening Test-II, Developmental Clinic Screener (PDDST-II, DCS)</td>
<td>18–48 mo</td>
<td>Questionnaire completed by parent (14)</td>
<td>10–15</td>
<td>0.73</td>
<td>0.49</td>
<td>Siegel</td>
<td>Purchase: PsychCorp/Harcourt Assessment <a href="http://www.harcourtassessment.com">www.harcourtassessment.com</a></td>
</tr>
<tr>
<td>Pervasive Developmental Disorders Screening Test-II, Autism Clinic Severity Screener (PDDST-II, ACSC)</td>
<td>18–48 mo</td>
<td>Questionnaire completed by parent (12)</td>
<td>10–15</td>
<td>0.58</td>
<td>0.60</td>
<td>Siegel</td>
<td>Purchase: PsychCorp/Harcourt Assessment <a href="http://www.harcourtassessment.com">www.harcourtassessment.com</a></td>
</tr>
<tr>
<td>Screening Tool for Autism in Two-Year-Olds (STAT)</td>
<td>24–36 mo</td>
<td>Interactive, requires specific training (12)</td>
<td>20</td>
<td>0.92</td>
<td>0.85</td>
<td>Stone et al, Stone et al Author: Wendy Stone, PhD (<a href="mailto:triad@vanderbilt.edu">triad@vanderbilt.edu</a>)</td>
<td></td>
</tr>
<tr>
<td>Social Communication Questionnaire (SCQ) (formerly the Autism Screening Questionnaire [ASQ])</td>
<td>4 y and older</td>
<td>Questionnaire completed by parent (40)</td>
<td>5–10</td>
<td>0.85–0.96</td>
<td>0.67–0.80</td>
<td>Berument et al, Rutter et al</td>
<td>Purchase: Western Psychological Services <a href="http://www.wpspublish.com">www.wpspublish.com</a></td>
</tr>
</tbody>
</table>

*Selected on the basis of availability of some published psychometric properties (in English) with scoring instructions and pass/fail cutoffs or the equivalent.
†Level 1 tools are most likely to be used in primary care settings.
‡Population-based sample.
§Clinical sample.
II Clinical and population-based samples.