

## Screening for Autism Spectrum Disorders

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### Clinical Question

What is the best tool to screen young children for autism spectrum disorders (ASDs)?

### Evidence-Based Answer

There are no studies directly comparing the various screening tools. The Modified Checklist for Autism in Toddlers (M-CHAT) is the tool most commonly used by physicians, followed by the Checklist for Autism in Toddlers (CHAT). All other tools account for about 3% of usage.

The M-CHAT should be used during routine well visits to screen low-risk children because of its positive predictive value (PPV) of approximately 60% when combined with follow-up for negative responses. (Strength of Recommendation [SOR]: A, based on a systematic review of cohort studies.) The CHAT, which has a PPV of 29% to 83% in low-risk children, can also be used. (SOR: B, based on a systematic review of multiple cohort studies of variable quality.) Several other screening tools are available; however, most have not been thoroughly evaluated for use in the general pediatric population.

### Evidence Summary

There are no studies comparing ASD screening tools used in the same group of children.<sup>1</sup> An online survey of 408 U.S. pediatricians across six states found that 90% of those who screened for ASDs used the M-CHAT, and 6.3% used the CHAT.<sup>2</sup> Two other screening tools were used by less than 2% of pediatricians. The study was limited to the geographic areas surveyed and by its response rate of only 10%.

A systematic review included four cohort studies ( $N > 15,000$  children) that evaluated

the M-CHAT in screening for ASDs in low-risk children (defined as those screened during a routine visit, not in response to specific concerns or family history).<sup>1</sup> The M-CHAT consists of 23 questions that the caregiver answers about the child's behavior. The M-CHAT/F is a structured follow-up interview for negative responses to questions. For instance, a negative response to the question "Does your child ever pretend, for example, to talk on the phone or take care of a doll or pretend other things?" is followed up, and credit may be given for activities such as pushing a car on a pretend road. Negative responses on two critical items or three total items indicate that the child is at risk of ASDs and should be referred for further evaluation. In most trials, the M-CHAT was administered at 18 or 24 months of age. Without follow-up, the PPV ranged from 6% to 36%; the addition of the M-CHAT/F increased the PPV to 28% to 68%.<sup>1</sup> A subsequent study of approximately 19,000 children reported a PPV of 6% for the M-CHAT alone and 54% for the M-CHAT/F.<sup>3</sup>

The same systematic review included five cohort studies ( $N =$  approximately 54,000 children) that evaluated the CHAT in screening for ASDs in low-risk children.<sup>1</sup> The CHAT consists of nine questions for caregivers about the child's behavior and a 10- to 15-minute clinical examination. Investigators in three of the trials administered the CHAT at 18 to 19 months of age and performed follow-up evaluations at 2.5 to 7 years of age. The PPV for the CHAT ranged from 29% to 83%. The studies varied in design, outcomes that were reported, and criteria for a positive screen. Of the two other tools noted in the survey,<sup>2</sup> the

Pervasive Developmental Disorders Screening Tool has not been extensively evaluated,<sup>4</sup> and the Childhood Autism Rating Scale is more commonly used in children who are at increased risk of ASDs.<sup>5</sup>

### Recommendations from Others

The American Academy of Pediatrics Council on Children with Disabilities recommends screening all children for autism at 18 and 24 months using a validated autism screening tool, but it does not recommend a specific tool.<sup>6</sup>

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