

**Bijlage Evidence table for studies on diagnostic accuracy for Autism Spectrum Disorders**

**De Autisme- en Verwante stoornissenschaal-Z-Revisie (AVZ-R)**

Methods	Patients	Instruments	Results	Quality Assessment
<p>Referentie: De Bildt, A., Sytema, S., Ketelaars, C., Kraijer, D., Volkmar, F., Minderaa, R. Measuring Pervasive Developmental Disorders in Children and Adolescents with Mental Retardation: A Comparison of Two Screening Instruments Used in a Study of the Total Mentally Retarded Population from a Designated Area. Journal of Autism and Developmental Disorders, Vol. 33, No. 6, December 2003.</p> <p>Aim study: The objective is to compare the AVZ-R with the Clinical classification (and the ADI-R and the ADOS) in a mental retardation (MR) population.</p> <p>Study design: Cross-sectional design.</p> <p>Setting: -</p> <p>Location: Netherlands, Friesland</p> <p>Training of assessors: -</p>	<p>Number of patients: Total cohort diagnostic stage: N=184 (827 received AVZ-R at the start of the study).</p> <p>Age: 4-18 years old</p> <p>Sex: N=184:? At the start of the study (N=827) 63% male.</p> <p>Ethnicity:?</p> <p>Inclusion: - 4- 18 years old - All stages of mental retardation (MR).</p> <p>Exclusion: -</p> <p>Co-morbidity?</p>	<p>Fase 3 Indextest: AVZ-R Cut-off AVZ-R: <math>\geq 10</math></p> <p>Reference test: Clinical classification (according to the DSM-IV TR criteria, based on parent information and observation of the child on video. Assigned by four experienced clinicians, two board-certified child and adolescent psychiatrists, one clinical and developmental psychologist and one resident. The clinicians were blind for other outcomes results). The clinical Classification was the golden standard.</p> <p>in combination with the: Autism Diagnostic Interview- Revised (ADI-R) and Autism Diagnostic Observation Schedule- Generic (ADOS-G)</p> <p>Time interval and treatment in between both tests:?</p>	<p>Target Condition:: PDD vs. Non-PDD.</p> <p>Prevalence PDD in sample 52%</p> <p>Sensitivity and Specificity of AVZ-R</p> <p>Clinical classification/AVZ-R (Calculated AB): PDD: N=184 Se. 0.81 Sp. 0.48 Prev. 0.52 VW+:0.63 VW-:0.70 LR+:1.57 LR-:0.39</p>	<p>Valid Reference test: +</p> <p>Independent assessment of reference and index test: +</p> <p>Assessment index test independent of clinical information: +</p> <p>No work-up verification bias: +</p> <p>Reference test before start of treatment: + Consecutive patients or independent sample: + Random sample</p> <p>Disease spectrum in study is representative:?</p> <p>Indextest described sufficient for reproducibility: +</p> <p>Conflicts of interest no :</p> <p>Conclusion: Article is well structured; both negative and positive scoring children were included in all stages.</p> <p>Quality of evidence: A2</p>
<p>Reference: Kraijer D, De Bildt, A The PDD-MRS: An Instrument for Identification of Autism Spectrum Disorders in Persons with Mental Retardation. Journal of Autism and Developmental Disorders 2005, Vol. 35, No. 4.</p>	<p>Number of patients: N=1230 (2-9 year: 379, 10-19 year: 101).</p> <p>Age: 2-80 years. There were categories for children from 2-9 (379 children) and 10-19 years</p>	<p>Fase 3 Index test: AVZ-R Cut-off score <math>\geq 10</math>.</p> <p>Reference test: Clinical observation (according to DSM-IV-TR criteria, made by experts on the basis of the ADOS</p>	<p>Target condition: ASD vs. Doubtful ASD and Non ASD. They found a prevalence of the full spectrum of autism of 39.2%.</p> <p>Results: Sensitivity and specificity for children 2-9 years old (n=379):</p>	<p>Valid reference test : +</p> <p>Independent assessment of reference and index test : +</p> <p>Assessment index test independent of clinical information : +</p> <p>No work-up or verification bias: +</p>

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<p>Study aim: examined whether the mean AVZ-R scores of the categories of persons diagnosed as Non-PDD, Doubtful-PDD/non-PDD and PDD sufficiently discriminated these categories.</p> <p>Location: Netherlands</p> <p>Setting: 1230 subjects from different places: non-ambulatory persons, residents of institutions and home-groups, day care centers, special clinics for observation and treatment.</p> <p>Training of assessors: The scale is easy to administer by psychologists, psychiatrists, and also workers with experience in the field of both mental retardation and autism, direct-care staff members, and teachers; no special preparatory training is needed. (NB: in the Netherlands a level B qualification is required).</p>	<p>(101 children) old.</p> <p>Sex: male: 719 Female: 511. No details for boys/girls till 19 years old.</p> <p>Ethnicity: not described.</p> <p>Inclusion : all subjects are clinically certified cases of mental retardation whose level of functioning has been properly assessed, all ranges of mental retardation are sufficiently represented, a wide age-range is covered, and subjects have been taken from various types of facilities. No subjects were excluded for reasons of presence of particular etiologies, additional disorders, or psychiatric problems; neither were clinical doubts about the presence of a PDD a reason for exclusion.</p> <p>Co-morbidity: All subjects were Mental Retarded (there were different levels of functioning: profound, severe, moderate of mild.</p> <p>Other:</p>	<p>videotape and the results of the ADI-R).</p> <p>Time interval and treatment in between both tests: not described.</p>	<p>Se: 92.6 Sp: 94.6 Clinical diagnosis in the AVZ-R norm sample: Non PDD: 260 Doubtful: 38 PDD: 81 Prev. 0.27</p> <p>Sensitivity and specificity for children 10-19 years old (n=101): Se: 93.2 Sp: 88.6 Clinical diagnosis in the AVZ-R norm sample: Non PDD: 44 Doubtful: 13 PDD: 44 Prev. 0.77</p> <p>- It's not clear what they did with the doubtful-category. - There's no calculation of Se. and Sp. in the article, only the outcomes.</p>	<p>Reference test given before start of treatment: +</p> <p>Consecutive patients or independent sample (+/-/?): +</p> <p>Disease spectrum in study is representative (+/-/?):?</p> <p>Index test described sufficient for reproducibility (+/-/?): +</p> <p>Conclusion: Se. and Sp. are both high and it seems as a good, clear well-conducted study with enough patients included.</p> <p>Conflicts of interest: no</p> <p>Overall quality of evidence: B - How is Se. and Sp calculated? Where did they placed the 'Doubtful outcomes'? There's a risk of bias.</p>

**Social Communication Questionnaire (SCQ)**

Methods	Patients	Instruments	Results	Quality Assessment
<p>Reference: Allen CW, Silove N, Williams K, Hutchins P. Validity of the social communication questionnaire in assessing risk of autism in preschool children with developmental problems. J Autism Dev Disord 2007; 37(7):1272-1278.</p> <p>Study aim: This study aims to estimate the sensitivity, specificity and positive and negative likelihood ratios of the SCQ in correctly identifying ASD from other developmental disorders amongst preschool aged children referred with developmental problems to a tertiary assessmentcentre.</p> <p>Study design: Cross-sectional design.</p> <p>Setting: Tertiary assessment centre, Sydney, Australia. They offer autism-specific and other developmental diagnostic evaluation</p> <p>Location: Child Development Unit (a state-wide specialist tertiary referral clinic at The Children's Hospital at Westmead</p> <p>Training assessors: Not needed for the SCQ.</p>	<p>Number of patients: 100 parents received SCQ, 81 were completed (N=81).</p> <p>Age: 2-7 years</p> <p>Sex: F: 15 (19%) M: 66 (81%)</p> <p>Ethnicity: ?</p> <p>Inclusion : Preschool children with developmental problems referred to a tertiary assessment centre. 56 referrers were questioning a diagnosis of ASD.</p> <p>Exclusion: ?</p> <p>Co-morbidity: ?</p> <p>Other: Referrals were predominantly made by paediatricians, psychiatrists and preschool special education services.</p> <p>Procedure: Parents of children accepted via the usual intake procedure were mailed the SCQ, and were asked to complete the SCQ prior to their child's appointment.</p>	<p>Fase 3</p> <p>Index test: SCQ (cut-off 15). It's a questionnaire for caregivers / parents of preschool children at risk for ASD. The SCQ is a screening tool. Cut-off per previous reports was 15. Children identified as at risk of ASD from the SCQ warrant an autism-specific diagnostic evaluation. The investigator scoring the SCQ was blinded to the outcome of the reference test. Of the 100 questionnaires sent, only 81 questionnaires were successfully completed. Some questionnaires were lost and families required replacements. There were some incomplete questionnaires due to difficulty with English and one parent who did not want to participate due to the anxiety associated with discussing autism.</p> <p>Reference test: Multidisciplinary Assessment (golden standard). This included history, observation, review of reports from other professionals who interact with the child (teachers, doctors and speech therapists), physical examination, and standardised assessment tools (development, intellectual ability). Autism-specific assessment included use of the childhood autism rating scale and designation of DSM-IV criteria for autistic disorder.</p> <p>Time interval and treatment in between both tests: No data, probably a few days to a few</p>	<p>Target condition: ASD, including autistic disorders, aspergers syndrome and pervasive developmental disorder-not otherwise specified.</p> <p>28 children (of 81) received a golden standard diagnosis ASD (35%), 25 of which had autistic disorder.</p> <p>Results ASD versus other developmental disorders (N=81, cut-off <math>\geq 15</math>) :</p> <p>Se 0.60 Se 0.61 (calculated MH) Sp 0.70 Prevalentie 0.35 VW+ 0.52 VW- 0.77 LR+ 2.01(1.21-3.34) LR- 0.56 (0.34-0.92)</p> <p>Results 56 pt with specific suspicion of ASD, cut-off <math>\geq 15</math>, ASD versus other developmental disorders: Se 0.61 Sp 0.64 VW+ 0.63 VW- 0.62 Prevalentie 0.5 LR+ 1.70(0.95-3.03) LR- 0.61(0.36-1.05)</p> <p>The cut-off score with optimum sensitivity and specificity was identified at 11 (Se 0.93, Sp 0.58).</p>	<p>Valid reference test (+/-/?):+</p> <p>Independent assessment of reference and index test (+/-/?):+</p> <p>Assessment index test independent of clinical information (+/-/?):+</p> <p>No work-up or verification bias (+/-/?):+</p> <p>Consecutive patients or independent sample (+/-/?):+</p> <p>Reference test before start of treatment (+/not relevant): +</p> <p>Disease spectrum in study is representative (+/-/?):?</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Conclusion: Well written article. The SCQ seems to be a moderate instrument in this specialisti setting. The SCQ misses 40% of the children with ASD. For 2-3 year olds the results are less favorable (more false negatives, low Sp). The SCQ can assist clinicians and tertiary services in selecting children with developmental problems who require autism-specific assessment.</p> <p>Remark: Research is needed in differing 1-year age bands.</p> <p>Conflicts of interest:-</p> <p>Quality of evidence: A2</p>

Methods	Patients	Instruments	Results	Quality Assessment
	The reference test was assessed on the day of the appointment.	weeks difference.		
<p>Reference: Corsello C, Hus V, Pickles A, Risi S, Cook EH, Jr., Leventhal BL et al. Between a ROC and a hard place: decision making and making decisions about using the SCQ. <i>J Child Psychol Psychiatry</i> 2007; 48(9):932-940.</p> <p>Aim study: There are few studies investigating the validity of the instrument, particularly with younger children, and with informants who are not already familiar with the traits and behaviors associated with autism. The present multi-site study was designed to investigate how well the SCQ functions as a clinical screening instrument in a larger, younger American sample of children with ASD or non-spectrum disorders.</p> <p>Study design: Cross-sectional design</p> <p>Setting: Two university-based clinics specializing in children with possible ASDs or autism centers in the US.</p> <p>Location: ?</p> <p>Training assessors: Not needed for the SCQ.</p>	<p>Number of patients!: 633 parents received SCQ, 590 were completed (N=590).</p> <p>Age: 2-16 years</p> <p>Sex: F 128 (22%) M 462 (78%)</p> <p>Ethnicity: The majority of the children were Caucasian (n = 495, 84%), with significantly fewer African Americans (n =43), and other ethnicities (n = 48, 4 missing).</p> <p>Inclusion: Children 2-16 years referred to university-based clinics specializing in children with possible ASDs and/or participants in research within the autism centers.</p> <p>Exclusion: ?</p> <p>Co-morbidity: Mental retardation: IQs ranged from profound mental retardation to superior intelligence. 74% was verbal.</p> <p>Other: • Parent education: The majority of the parents of the sample had some</p>	<p>Fase 3</p> <p>Index test: SCQ, cut-off <math>\geq 15</math>. It's a 40-items questionnaire for caregivers / parents of children at risk for ASD. There are 2 versions: &lt; 5 years and <math>\geq 5</math> years. The SCQ is a screening tool. Cut-off per previous reports was 15. Children identified as at risk of ASD from the SCQ warrant an autism-specific diagnostic Evaluation. The investigator scoring the SCQ was blinded to the outcome of the reference test</p> <p>Reference test: Best estimate consensus diagnosis. Consensus Best Estimate DSM IV (APA, 1994) diagnoses were made by two examiners (e.g., a child psychiatrist, clinical psychologist) who saw the child for 1-3 one- to three-hour sessions and had access to all assessment results, as well as unstructured telephone teacher interviews.</p> <p>Time interval and treatment in between both tests: No information in article, probably a few days to a few weeks.</p>	<p>Target condition: ASD (including autism, PDD – NOS and Asperger Disorder (AD)) vs NS (non-spectrum disorders like other developmental / psychiatric disorders). Prevalence ASD in sample 74%</p> <p>Clinical diagnosis: • Autism 282 (48%) • PDD-NOS or AD 157 (27%) • NS 151 (26%)</p> <p>ASD vs NS (calculated MH): AUC 0.77 Se 0.71 Sp 0.71 Prevalence 0.74 VW+ 0.88 VW- 0.46 LR+ 2.45 LR- 0.41</p> <p>Age groups: • The sensitivity increased with age groups (&gt; 11 highest sensitivity). • Specificity was quite low in all age groups with the exception of the 8-10-year-old group. In order to achieve sensitivity of 80%, cut-off scores would need to be lowered in order to distinguish ASD from NS for children under the age of 8 years. Specificity remained relatively low in all groups.</p>	<p>Valid reference test (+/-/?):+</p> <p>Independent assessment of reference and index test (+/-/?):+</p> <p>Assessment index test independent of clinical information (+/-/?):+</p> <p>No work-up or verification bias (+/-/?):+</p> <p>Consecutive patients or independent sample (+/-/?):+</p> <p>Reference test before start of treatment (+/not relevant): +</p> <p>Disease spectrum in study is representative (+/-/?):?</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Conflicts of interest: no</p> <p>Conclusion: Good quality article. Setting may not be representative of children referred to general psychiatry or developmental clinics. However, the authors claim that in this specialized setting there is a need for reliable and valid instruments to determine which child should receive a formal diagnostic assessment.</p> <p>Quality of evidence: A2</p>

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	<p>college or a higher level of education (n = 451, 76%, 38 missing).</p> <ul style="list-style-type: none"> <li>• Procedure: Parents completed the SCQ for their child prior to the diagnostic assessment. Additionally, ADI-R and ADOS were assessed after the SCQ to make additional comparisons.</li> </ul>			
<p>Reference: Charman T, Baird G, Simonoff E, Loucas T, Chandler S, Meldrum D et al. Efficacy of three screening instruments in the identification of autistic-spectrum disorders. Br J Psychiatry 2007; 191:554-559.</p>	<p>Number of patients: N=119. 1.770 parents of children with special educational needs with and without autistic-spectrum disorders received SCQ (255 with PDD, 1.515 at risk of PDD). 1.035 SCQs were returned and parents opted in for further assessment. 255 children received the reference test (a stratified subsample based on SCQ-scores). 119 completed also the SRS (a-select?).</p> <p>Age: 9.5–11 years of age. Mean 10.2 (SE=0.4)</p> <p>Sex: ?</p> <p>Ethnicity: ?</p> <p>Inclusion: A subsample of the Special Needs and Autism Project (SNAP) cohort of children 9–13 years of age with special</p>	<p>Fase 3</p> <p>Index test:</p> <ul style="list-style-type: none"> <li>• Social Communication Questionnaire (SCQ). Recommended cut-off <math>\geq 15</math>.</li> <li>• Social Responsiveness Scale (SRS). Chosen cut-off <math>\geq 75</math>.</li> </ul> <p>Reference test: A clinical consensus diagnosis: A stratified subsample (by coincidence, also n=255) received a comprehensive diagnostic assessment, including standardized clinical observation (the ADOS-G), parent-interview assessments of autistic symptoms (ADI-R), language and IQ tests, evaluation of psychiatric comorbidities and a medical examination. The team used ICD-10 research diagnostic criteria (World Health Organization, 1993) to derive a clinical consensus diagnosis of childhood autism, other autistic-spectrum disorders or no autistic-spectrum disorder.</p> <p>Time interval and treatment in between both tests: SCQ-golden standard: no time interval mentioned. SRS-Golden standard: 50 before and</p>	<p>Target condition: Autistic-spectrum disorders vs non-ASD (no-autism spectrum disorders, or other developmental / psychiatric disorders).</p> <p>Prevalence ASD in sample 59%</p> <p>Clinical diagnosis in sample n=119:</p> <ul style="list-style-type: none"> <li>• 33 Autism (28%)</li> <li>• 37 other ASD (31%)</li> <li>• 49 non-ASD (41%)</li> </ul> <p>Results SCQ (not calculated, weighted values were presented) n=119, ASD vs non-ASD:</p> <p>AUC 0.90 (0.81-0.96) Se 0.86 (0.65-0.96) Sp 0.78 (0.60-0.93) Prevalence 0.59 VW+ 0.74 (0.56-0.92) VW- 0.88 (0.72-0.97) LR+ ? LR- ?</p>	<p>Valid reference test (+/-/?):+</p> <p>Independent assessment of reference and index test (+/-/?):?</p> <p>Assessment index test independent of clinical information (+/-/?):?</p> <p>No work-up or verification bias (+/-/?):-</p> <p>Reference test before start of treatment (+/not relevant): ?</p> <p>Consecutive patients or independent sample (+/-/?):?</p> <p>Disease spectrum in study is representative (+/-/?):?</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Conflicts of interest: ?</p> <p>Conclusion on quality: Poor quality study. Setting unknown, many things are not transparent,</p> <p>Quality of evidence: B</p>
<p>Aim study: In the present study we directly compared the instrument properties of the SCQ and SRS in identifying individuals with autistic-spectrum disorders in a subsample of the Special Needs and Autism Project (SNAP) cohort of children 9–13 years of age with special educational needs with and without autistic-spectrum disorders. (NB: de CCC is ook meegenomen, maar die heeft niet onze belangstelling).</p> <p>Study design: Cross-sectional design.</p> <p>Setting: UK.</p>				

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<p>Location: ? children of the Special Needs and Autism Project (SNAP) cohort of children 9–13 years of age with special educational needs with and without autistic-spectrum disorders (more explanation in other article)</p> <p>Training assessors: Not needed for the SCQ.</p>	<p>educational needs with and without autistic-spectrum disorders.</p> <p>Exclusion: ?</p> <p>Co-morbidity: Mean IQ 78.5 (SE=1.8)</p>	<p>69 following diagnostic assessment. No time interval mentioned.</p>		
<p><b>Reference through reference tracking:</b> Chandler, S., Charman, T., Baird, G., et al (2007). Validation of the Social Communication Questionnaire in a population cohort of children with autism spectrum disorders. Journal of the American Academy of Child and Adolescent Psychiatry, 46, 1324-1332.</p>	<p>Number of patients: N= 255</p> <p>1.770 parents received a SCQ. 255 parents returned the SCQ, were invited to participate (stratification), were willing to participate, and whose child received reference test.</p> <p>Age: Mean age at screening 10.3 years (SD 0.4). The age at which pt were diagnostically assessed ranged from 9.8-14.5 years.</p> <p>Sex: ?</p> <p>Ethnicity: ?</p> <p>Inclusion: At risk of ASD: A stratified subsample of a population cohort of children with a local clinical ASD diagnosis or with special educational needs (n = 255, SNAP sample) SNAP: Special Needs and Autism Project. Stratification based on local</p>	<p>Fase 3 Index test: Social Communication Questionnaire (SCQ). Cut-off score was <math>\geq 15</math>.</p> <p>Reference test: ADI-R, ADOS and ICD-10 (they received a comprehensive diagnostic assessment including standardized clinical observation (ADOS-G) and parent interview assessments of autistic symptoms (ADI-R), language and IQ psychiatric comorbidities and a medical examination. The team used ICD-10 research criteria to derive a clinical consensus diagnosis of childhood autism).</p> <p>Time interval and treatment in between both tests: ?</p>	<p>Target condition: Autistic-spectrum disorders vs non-ASD (no-autism spectrum disorders, or other developmental / psychiatric disorders).</p> <p>Clinical diagnosis in SNAP-sample n=255:  <ul style="list-style-type: none"> <li>• 81 Autism (32%)</li> <li>• 77 other ASD (30%)</li> <li>• 97 non-ASD (38%)</li> </ul> </p> <p>ASD vs non-ASD in SNAP-sample (N=255, cut-off <math>\geq 15</math>):</p> <p>AUC 0.88 (0.82-0.93) Se 0.88 (0.78-0.95) Sp 0.72 (0.57-0.85) Prevalence 62% VW+ 0.64 (0.50-0.78) VW- 0.91 (0.82-0.97) LR+ ? LR- ?</p>	<p>Valid reference test (+/-/?):+</p> <p>Independent assessment of reference and index test (+/-/?):?</p> <p>Assessment index test independent of clinical information (+/-/?):?</p> <p>No work-up or verification bias (+/-/?):+</p> <p>Reference test before start of treatment (+/not relevant): ?</p> <p>Consecutive patients or independent sample (+/-/?):+</p> <p>Disease spectrum in study is representative (+/-/?):?</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Quality of evidence: B</p> <p>Conflicts of interest: -</p> <p>Conclusion: Moderate quality study. The setting seems not representable for practice situations. The SCQ may be helpful for schoolchildren at risk of ASD, although 12% of the children with ASD are</p>
<p>Aim study: To examine the properties of the SCQ in a population cohort of children with special educational needs (SEN) with and without autism spectrum disorders (ASD).</p> <p>Studie design: Cross-sectional design</p> <p>Setting: ?</p> <p>Location: Southeastern United Kingdom</p> <p>Training assessors: Not needed</p>				

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	<p>diagnosis and SCQ-scores.</p> <p>There was a second sample, a population sample not at risk, but no reference test was administered, so no further information is presented here.</p> <p>Exclusion: ?</p> <p>Co-morbidity:-</p>			missed.
<p><b>Reference through reference checking:</b> Eaves LC, Wingert HD, Ho HH, Mickelson EC. Screening for autism spectrum disorders with the social communication questionnaire. J Dev Behav Pediatr 2006a; 27(2 Suppl):S95-S103.</p>	<p>Number of patients: N=151</p> <p>Age: Mean age 61.5 months (SD 9.2)</p> <p>Sex: F=32 (21%) M=119 (79%)</p> <p>Ethnicity: 71% spoke English only 20% spoke English and another language at home.</p> <p>Inclusion: Children from 2 clinic samples who are at risk for autism or have developmental problems: 1. Autism Clinic (AC): children were referred and were at risk for ASD (n=106). 2. Preschool Clinic (PC): for children 3-5 years (n=45)</p> <p>Exclusion: Children &lt; 3 years</p> <p>Co-morbidity:</p>	<p>Fase 3 Index test: SCQ, cut-off <math>\geq 15</math>. SCQ scores were enhanced: an estimate was made to account for missing items (e.g. in non-verbal children) with the following formula: (sum of responses) x 39 / (39-number of missing responses). This led to higher SCQ-scores, but only 1 child changed categories.</p> <p>Reference test: Team consisting of a developmental pediatrician, psychologist and speech language pathologist. ASD-diagnosis relied on the use of the CARS, the DSM-IV and clinical judgment. Sometimes the ADOS was used. Additionally: - Developmental/medical history - Child observation - Developmental /cognitive testing - Interview parents - Reports from preschool or daycare</p> <p>Time interval and treatment in between both tests: The index test was administered shortly before the appointment for a diagnostic</p>	<p>Target condition: Autistic-spectrum disorders vs non-ASD (no-autism spectrum disorders, or other developmental / psychiatric disorders, mental handicaps, language and behavior disorders).</p> <p>Results: Clinical diagnosis (N=151): • 25 Autism (17%) • 24 other ASD (16%) • 102 non-ASD (68%) More pt from the AC sample had ASD (42 (40%) and 7 (16%) respectively).</p> <p>ASD vs non-ASD (N=151, cut-off <math>\geq 15</math>, enhanced SCQ-scores, (calculated MH):</p> <p>AUC ? Se 0.80 Sp 0.56 Prevalence 32% VW+ 0.46 VW- 0.85 LR+ 1.80 LR- 0.37</p>	<p>Valid reference test (+/-/?):+</p> <p>Independent assessment of reference and index test (+/-/?):?</p> <p>Assessment index test independent of clinical information (+/-/?):?</p> <p>No work-up or verification bias (+/-/?):+</p> <p>Reference test before start of treatment (+/not relevant): ?</p> <p>Consecutive patients or independent sample (+/-/?): ?</p> <p>Disease spectrum in study is representative (+/-/?):+</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Quality of evidence: B</p> <p>Conflicts of interest: -</p> <p>Conclusion: Moderate quality study. Relevant information missing. The SCQ-scores were enhanced because of missing values. <u>Discrepancy exists between presented</u></p>
<p>Aim study: Diagnostic accuracy of the SCQ in very young children.</p> <p>Study design: Crosssectional design</p> <p>Setting: Autism specialty Clinic (AC) or General Preschool Developmental Clinic (PC). Both part of the Sunny Hill Health Centre for Children</p> <p>Location: Vancouver, Canada.</p> <p>Training assessors: Pediatrics and psychologists were trained in ADI and ADOS.</p>				

Methods	Patients	Instruments	Results	Quality Assessment
	Many children had co-morbidity.	assessment at the clinic.	Presented in article: Se 0.71 Sp 0.79 Prevalence 32% VW+ 0.65	<u>and calculated values. Therefore this article is not advised as the evidence for the diagnostic accuracy of the SCQ.</u>
<p><b>Reference through reference tracking:</b> Eaves LC, Wingert H, Ho HH. Screening for autism: agreement with diagnosis. Autism 2006b; 10(3):229-242.</p> <p><b>Aim study:</b> Diagnostic accuracy of the SCQ in children 4-6 years old. How well can it be used in a multiclinic diagnostic centre to direct children to the correct clinic? (Idem for the M-CHAT in 2-3 year olds, but not described here).</p> <p><b>Study design:</b> Crosssectional design.</p> <p><b>Setting:</b> Tertiary autism clinic, part of the Sunny Hill Health Centre for Children.</p> <p><b>Location:</b> Vancouver, British Columbia, Canada.</p> <p><b>Training assessors:</b> Not needed for SCQ, no information.</p>	<p>Number of patients: N=94</p> <p>Age: 4-6 years old. Mean age 51.2 months (range 39-75 months)</p> <p>Sex: F=20% M=80%</p> <p>Ethnicity: 30% spoke another primary language at home.</p> <p>Inclusion: Children 4-6 years old who children were referred by family practitioners or community pediatricians for diagnosis and assessment of suspected ASD.</p> <p>Exclusion: -</p> <p>Co-morbidity: -</p>	<p>Fase 3 Index test: SCQ, cut-off <math>\geq 15</math>. SCQ scores were adjusted: an estimate was made to account for missing items (e.g. in non-verbal children). The adjusted scores had slightly better Se and Sp.</p> <p>Reference test: Experienced multidisciplinary team consisting of a developmental pediatrician, and a psychologist and speech language pathologist. ASD-diagnosis relied on the use of the CARS, the DSM-IV and clinical judgment. Additionally: - Developmental history - Child observation - Language /cognitive testing - Interview parents - Reports from preschool or daycare</p> <p>Time interval and treatment in between both tests: The SCQ was sent to the parents as part of an information package en was filled in before the appointment for a diagnostic assessment at the clinic.</p>	<p>Target condition: Autistic-spectrum disorders vs non-ASD (no-autism spectrum disorders, or other developmental / psychiatric disorders, mental handicaps, language and behavior disorders).</p> <p>Results: Clinical diagnosis (N=94): • 35 (37%) ASD • 59 (63%) non-ASD</p> <p>ASD vs non-ASD (N=94, cut-off <math>\geq 15</math>, enhanced SCQ-scores, calculated MH):</p> <p>AUC ? Se 0.74 Sp 0.54 Prevalence 37% VW+ 0.49 VW- 0.78 LR+ 1.62 LR- 0.47</p>	<p>Valid reference test (+/-/?):+</p> <p>Independent assessment of reference and index test (+/-/?):?</p> <p>Assessment index test independent of clinical information (+/-/?): -</p> <p>No work-up or verification bias (+/-/?):+</p> <p>Reference test before start of treatment (+/not relevant): ?</p> <p>Consecutive patients or independent sample (+/-/?): ?</p> <p>Disease spectrum in study is representative (+/-/?):+</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Quality of evidence: B</p> <p>Conflicts of interest: -</p> <p>Conclusion: Moderate quality study. Relevant information missing. The SCQ-scores were enhanced because of missing values. One in every four children with ASD is not recognized with the SCQ, and almost half of the children that screen positive have no ASD. The SCQ has limited value for professionals in this setting.</p>
Reference:	Number of patients: N=82	Fase 3	Target condition: ASD vs non-	Valid reference test (+/-/?):+



Methods	Patients	Instruments	Results	Quality Assessment
<p>Snow AV, Lecavalier L. Sensitivity and specificity of the Modified Checklist for Autism in Toddlers and the Social Communication Questionnaire in preschoolers suspected of having pervasive developmental disorders. <i>Autism</i> 2008; 12(6):627-644.</p>	<p>(N=65 for SCQ assessment)</p> <p>Age: 18-70 months (30-70 for SCQ assessment), mean 42.7 months (SD 14.1). Children with ASD were significantly younger than non-ASD children.</p>	<p>Index test: SCQ, cut-off <math>\geq 15</math>.</p> <p>Reference test: Diagnoses were made in accordance with DSM-IV criteria by multidisciplinary teams based on parent interviews, child observations, cognitive assessments and the administration of autism specific instruments.</p> <p>Time interval and treatment in between both tests:</p>	<p>ASD (developmental delay and/or language impairment).</p> <p>Prevalence in sample: 40 of 65 had ASD ( 62%)</p> <p>Results: N=65, cutoff <math>\geq 15</math>, ASD vs non-ASD (calculated MH):</p> <p>Se 0.70 (0.56-0.84) Sp 0.52 (0.32-0.72) PV+ 0.70 PV- 0.52 LR+ 1.46 LR- 0.58</p> <p>The optimal cut-off was 13 in this sample, the Se rises to 0.85.</p>	<p>Independent assessment of reference and index test (+/-/?): +</p> <p>Assessment index test independent of clinical information (+/-/?):+</p> <p>No work-up or verification bias (+/-/?):+</p> <p>Reference test given before start of treatment (+/not relevant): +</p> <p>Consecutive patients or independent sample (+/-/?): ?</p> <p>Disease spectrum in study is representative (+/-/?):?</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Conclusion: The SCQ had a sensitivity of 0.70 and a specificity of 0.52. These results are lower than originally reported by Berument et al. (1999), but consistent with other studies using the SCQ in younger children who were evaluated at tertiary clinics.</p> <p>Conflicts of interest: non mentioned</p> <p>Overall quality of evidence: A2</p>
<p>Study aim: Assessment of the specificity and sensitivity of the SCQ to distinguish children with ASD from those with other developmental disorders.</p> <p>Study design: Cross-sectional study</p> <p>Setting: Tertiary developmental disorder assessment clinic (a specialty clinic in a large midwestern hospital).</p> <p>Location: Ohio, USA.</p> <p>Training of assessors:</p>	<p>Sex: 63 M (77%) 19 F (23%)</p> <p>Ethnicity: Caucasian 78% African-American 6% Other 7%</p> <p>Inclusion : preschool children with a developmental disorder referred for possible ASD.</p> <p>Exclusion:</p> <p>Co-morbidity:</p> <p>Other: SCQs with more than three unanswered items were discarded (<math>n = 7</math>). In other situations, the missing items were substituted with the mean item domain score (<math>n = 3</math>).</p>			

**Social Responsiveness Scale (SRS)**

Methods	Patients	Instruments	Results	Quality Assessment
<p>Referentie: Charman T, Baird G, Simonoff E, Loucas T, Chandler S, Meldrum D et al. Efficacy of three screening instruments in the identification of autistic-spectrum disorders. Br J Psychiatry 2007; 191:554-559.</p> <p>Study aim: To compare the instrument properties of the SCQ and SRS (and the CCC – but this is not relevant for this guideline) in identifying individuals with autistic-spectrum disorders in a subsample of children, 9-13 with special edu needs with and without autism-spectrum disorders.</p> <p>Study design Cross-sectional design. Setting: UK. Training assessors: Not required for the SRS.</p>	<p>Aantal: N=119. 1.770 parents of children with special educational needs with and without autistic-spectrum disorders received SCQ (255 with PDD, 1.515 at risk of PDD).</p> <p>1.035 SCQs were returned and parents opted in for further assessment. 255 children received the reference test (a stratified subsample based on SCQ-scores). 119 completed the SRS.</p> <p>Age: Range: 9.5–11 years of age. Mean 10.2 (SE=0.4)</p> <p>Sex ratio: Not reported</p> <p>Ethnicity : Not reported</p> <p>Inclusion Criteria: Had to be part of the Special Needs and Autism Project (SNAP) cohort – this is a cohort of children aged 9-13 with special educational needs and without ASD.</p> <p>Exclusion criteria: Not reported</p> <p>Prevalence Not reported</p> <p>Co-morbidities: Mean IQ 78.5 (SE=1.8)</p>	<p>Fase 3 Index test:</p> <ul style="list-style-type: none"> <li>• Social Communication Questionnaire (SCQ). Recommended cut-off <math>\geq 15</math>.</li> <li>• Social Responsiveness Scale (SRS). Chosen cut-off <math>\geq 75</math>.</li> </ul> <p>Reference test: A clinical consensus diagnosis: A stratified subsample (by coincidence, also n=255) received a comprehensive diagnostic assessment, including standardized clinical observation (the ADOS–G), parent-interview assessments of autistic symptoms (ADI–R), language and IQ tests, evaluation of psychiatric comorbidities and a medical examination. The team used ICD–10 research diagnostic criteria (World Health Organization, 1993) to derive a clinical consensus diagnosis of childhood autism, other autistic-spectrum disorders or no autistic-spectrum disorder.</p> <p>Time interval between test SCQ-reference test: no time interval reported SRS-reference test: 50 before and 69 following diagnostic assessment. No time interval mentioned.</p>	<p>Target condition: Autistic-spectrum disorders vs. non-ASD (no-autism spectrum disorders, or other developmental / psychiatric disorders).</p> <p>Clinical diagnosis in sample n=119:</p> <ul style="list-style-type: none"> <li>• 33 Autism (28%)</li> <li>• 37 other ASD (31%)</li> <li>• 49 non-ASD (41%)</li> </ul> <p>Results SRS (not calculated, weighted values were presented) n=119, ASD vs non-ASD:</p> <p>AUC 0.77 (0.61-0.90) Se 0.78 (0.57-0.92) Sp 0.67 (0.46-0.84) Prevalence 0.59 VW+ 0.63 (0.46-0.82) VW- 0.81 (0.61-0.94) LR+ ? LR- ?</p>	<p>Valid reference test (+/-/?):+</p> <p>Independent assessment of reference and index test (+/-/?):?</p> <p>Assessment index test independent of clinical information (+/-/?):?</p> <p>No work-up or verification bias (+/-/?):-</p> <p>Reference test before start of treatment (+/not relevant): ?</p> <p>Consecutive patients or independent sample (+/-/?):?</p> <p>Disease spectrum in study is representative (+/-/?):?</p> <p>Index test described sufficient for reproducibility (+/-/?):+</p> <p>Conflicts of interest: None reported, but one of the authors receives royalties from the SCQ and ADOS-G</p> <p>Quality of evidence: B</p> <p>Overall, low to moderate quality study; significant amount of information regarding the sample selection and setting missing.</p>