



Queries

An Occasional Paper

Compiling States' Approaches to Current Topics

Screening and Early Identification of Autism Spectrum Disorders

*Compiled by Evelyn Shaw & Deborah Hatton
Updated September 2009*

In response to interest from the National Professional Development Center on Autism Spectrum Disorders (NPDC-ASD), NECTAC queried state Part C and Section 619 coordinators regarding screening measures, diagnostic instruments and procedures, and trends in identifying young children with ASD under the age of five years. NECTAC collaborated with the NPDC-ASD to develop and refine a series of questions and then to conduct an on-line survey during a two week period in November 2008. The survey was opened again in August 2009 to allow responses from additional states. Individual states are not identified in this report.

Responses were received from a total of 40 respondents in 30 states/jurisdictions scattered throughout the United States and the Pacific jurisdictions. Of these respondents, 18 were Part C program coordinators, 13 were Section 619 program coordinators, and 9 indicated that they represented both programs. Twelve states had respondents from both Part C and Section 619.

The findings of this informal survey are intended only to provide information to the National Professional Development Center on ASD and to Part C and Section 619 program coordinators regarding the current status of screening and diagnosis of ASD among children ages birth to five years. The findings are not purported to be representative of results that would be obtained from all states and jurisdictions.

First, respondents were asked to identify the screening measures/tools that were being used within their states to screen young children for ASD. Respondents could select all that applied from a list of measures typically used for screening young children for ASD that are shown in Table 1 below. The two most frequently selected screening instruments were: Ages & Stages Questionnaire: Social Emotional (ASQ-SE; Squires et al., 2002), selected by 83% (N = 33) of the respondents; Modified Checklist for Autism in Toddlers (M-CHAT; Robins et al., 2001), selected by 73% (N = 29) of the respondents. Most respondents (N = 36, 90%) indicated that more than one screening tool is being used in their program. Attachment 1 at the end of this paper is a compiled table of screening tools listed in the survey as well as additional tools survey respondents said were in use in their states. Included in the table are commonly used acronyms, full citations, and URLs for more information on each screening tool.

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Table 1
Use of Autism Screening Instruments in Participating State Early Childhood Programs

Measure	Respondents (N=40)	Percent of Respondents
Ages & Stages Questionnaire: Social- Emotional (ASQ-SE)	33	83
Modified Checklist for Autism in Toddlers (MCHAT)	29	73
Checklist for Autism in Toddlers (CHAT)	14	35
Checklist for Autism in Toddlers-23 (CHAT-23)	11	28
Autism Behavior Checklist (ABC)	11	28
Pervasive Developmental Disabilities Screening Test II (PDD ST II)	9	23
Gilliam Autism Rating Scale 2nd Edition (GARS-2)	7	18
Communication and Symbolic Behavior Scales Developmental Profile Infant/Toddler Checklist (CSBS-DP)	6	15
Asperger Syndrome Diagnostic Scale (ASDS)	5	13
Social Communication Questionnaire (SCQ)	4	10
Screening Tool for Autism in Two-Year-Olds (STAT)	4	10
Gilliam Asperger’s Disorder Scale (GADS)	4	10
Childhood Asperger Syndrome Test (CAST)	2	5
Other*	6	15

* Other screening tools used were Temperament and Atypical Behavior Scale (TABS), Early Screening Project (ESP), Greenspan Social-Emotional Growth Chart (GSEGC), Social Responsiveness Scale (SRS), Baby and Infant Screen for Children with aUtism Traits (BISCUIT), Childhood Autism Rating Scale (CARS), and a locally developed screening tool.

Next, respondents were asked to identify the instruments/procedures used to diagnose ASD in children under five years of age in their states. Respondents could select all that applied from a list of measures typically used for diagnosing young children with ASD, and most respondents indicated that multiple methods were used to diagnose ASD in their programs (81%, N = 29). Respondents from four programs did not identify any tools for diagnosing ASD in children ages five years and younger, and respondents from three programs noted that they “did not diagnose ASD.” As can be seen in Table 2, the majority of respondents indicated that the Childhood Autism Rating Scale (CARS; Schopler et al., 1988) and Autism Diagnostic Observation Schedule (ADOS; Lord et al., 2000) were being used to diagnose ASD in children under five years of age in their programs. In addition, some respondents indicated that the Diagnostic and Statistical Manual, American Psychiatric Association (DSM IV-TR, 2000) is being used to diagnose ASD in children under five years of age. A category for “other” was also available and included a text box for describing the instrument or procedures. Attachment 2 at the end of this paper is a compiled table of diagnostic tools listed in the survey as well as additional tools survey respondents said were in use in their states. Included in the table are commonly used acronyms, full citations, and URLs for more information on each diagnostic tool.

Table 2
Use of Autism Diagnostic Instruments in Participating State Early Childhood Programs

Measure	Respondents (N=36)	Percent of Respondents
Childhood Autism Rating Scale (CARS)	25	69
Autism Diagnostic Observation Schedule (ADOS)	22	61
Diagnostic and Statistical Manual-IV (DSM-IV)	18	50
Autism Diagnostic Interview-Revised (ADI-R)	10	28
International Classification of Diseases-10 (ICD-10)	5	14
Other*	8	22
No diagnoses made	3	8

* Other tools and methods indicated were Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood, Revised (DC:0-3R), Scales of Independent Behavior-Revised (SIB-R), Psychoeducational Profile Revised (PEP-R), state guidelines, and professional observational visits.

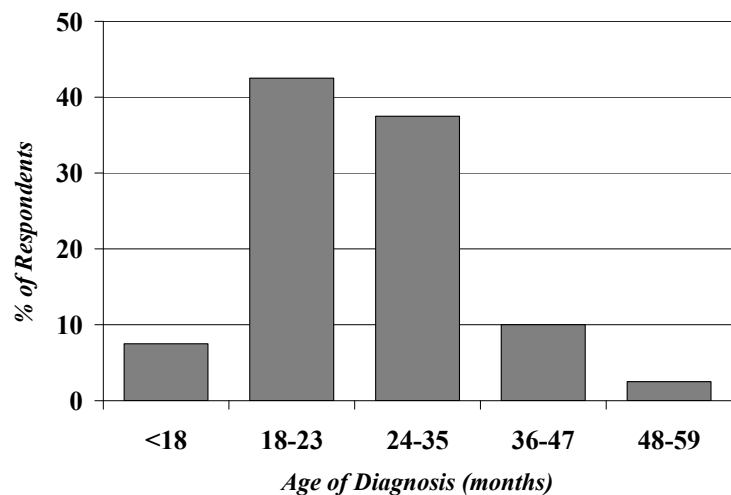
The third survey question asked respondents if their states have a targeted campaign or initiative aimed at screening and early identification of ASD in children five years and younger. Thirteen of the 40 respondents reported having such an initiative (33%).

Finally, respondents were asked to identify the current trend for earliest age of diagnosis for ASD in their states by selecting from a list of seven age groupings. They were asked to respond with their perception if they did not have an exact data source. The age groupings included: a) before 18 months; b) 18-23 months; c) 24-35 months; d) 36-47 months; e) 48-59 months; f) 60-71 months; and g) 72 months or older. Three respondents (7.5%) reported that the current trend for the earliest age of diagnosis of ASD was before 18 months old—all respondents identifying this age were Part C coordinators. Seventeen respondents (42.5%) reported that the trend for earliest age of diagnosis was between 18 and 23 months, fifteen (37.5%) between 24 and 35 months. Thus, most (87.5%) of the respondents from both Part C and Section 619

reported a trend in diagnoses of ASD being made before age 3. Four (10%) reported diagnoses being made between 36 and 47 months; three of these were Section 619 coordinators. Finally one respondent (2.5%) reported that the earliest age of diagnosis was between 48 and 59 months – unexpectedly, this was a Part C Coordinator. None of the respondents selected an age span greater than 59 months. Please see Figure 1 for a summary of participants’ responses.

It is encouraging to note that the Part C and Section 619 programs perceive that there is a trend toward earlier identification than has been previously reported in the literature (Shattuck, P.T. et al., 2009). The results of this brief query suggest that the participating states are attuned to the need for early identification and diagnosis of ASD. Currently, two primary screening tools and three diagnostic measures were the most often reported; however, the majority of the states acknowledged that multiple tools and diagnostic measures were used within their states. It will be important for ongoing research studies on early screening and diagnosis to provide guidance to help states identify and use evidence-based strategies and tools for this important endeavor.

Figure 1
State Coordinators' Perceptions of Current Trends
for Earliest Age of Diagnosis of ASD



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- Lord, C., Risi, S., Lambrecht, L., Cook Jr., E. H., Leventhal, B. L., DiLavore, P. C., et al. (2000). The autism diagnostic observation Schedule—Generic: A standard measure of social and communication deficits associated with the spectrum of autism. *Journal of Autism & Developmental Disorders*, 30(3), 205-223.
- Robins, D. L., Fein, D., Barton, M. L., & Green, J. A. (2001). The modified checklist for autism in toddlers: An initial study investigating the early detection of autism and pervasive developmental disorders. *Journal of Autism & Developmental Disorders*, 31(2), 131.
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- Shattuck, P.T., Durkin, M., Maenner, M., Newschaffer, C., Mandell, D., Wiggins, L., Lee, L., Rice, C., Giarelli, E., Kirby, R., Baio, J., Pinto-Martin, J., Miller, L., Cuniff, C. (2009) The timing of identification among children with an autism spectrum disorder: Findings from a population-based surveillance study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47, 474-483.
- Squires, J., Bricker, D., & Twombly, E. (2002). *The ASQ:SE user's guide: For the ages & stages questionnaires: Social-emotional*. Baltimore, MD: Paul H Brookes Publishing.

Citation

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Attachment 1
Tools in Use by State Early Intervention and Early Childhood Special Education Programs for Screening Autism Spectrum Disorders in Very Young Children

Tool	Citation
ABC	Krug, D., Arick J.R., Almond, P.J (1980). ASIEP-3: Autism Screening Instrument for Educational Planning - Third Edition. Austin, TX: Pro-ed. http://www.proedinc.com/customer/productView.aspx?ID=4217
ASDS	Myles, B., Jones-Bock, S., Simpson, R. (2001). Asperger Syndrome Diagnostic Scale (ASDS). North Tonawanda, NY: Multi-Health Systems Inc. http://www.mhs.com/product.aspx?gr=edu&prod=asds&id=overview
ASQ-SE	Squires, J., Bricker, D., & Twombly, E. (2002). Ages & Stages Questionnaire: Social- Emotional (ASQ-SE). Baltimore, MD: Paul H Brookes Publishing. http://www.brookespublishing.com/store/books/squires-asqse/index.htm
BISCUIT	Matson, J. L., Wilkins, J., Sevin, J. A., Knight, C., Boisjoli, J. A., & Sharp, B. (2009). Reliability and item content of the Baby and Infant Screen for Children with aUtIsm Traits (BISCUIT): Parts 1, 2 and 3. <i>Research in Autism Spectrum Disorders</i> , 3, 336–344. doi:10.1016/j.rasd.2008.08.001 if one has institutional access, or see http://www.sciencedirect.com/science/journal/17509467
CAST	Scott, F., Baron-Cohen, S., Bolton, P., & Brayne, C. (2002). Childhood Asperger Syndrome Test (CAST). <i>Autism</i> 6(1), 9-31. http://aut.sagepub.com/cgi/content/abstract/6/1/9
CARS	Schopler, E., Reichler, R.J., Rothen Renner, B. (1999). Childhood Autism Rating Scale (CARS). Chapel Hill, NC: University of North Carolina Project TEACCH. http://www.teacch.com/publications.html#Assessment
CHAT	Wheelwright, S. (1995). Checklist for Autism in Toddlers (CHAT) http://depts.washington.edu/dataproj/chat.html
CHAT-23	Wong, V. et al. (2004). A Modified Screening Tool for Autism (Checklist for Autism in Toddlers [CHAT-23]) for Chinese Children. <i>Pediatrics</i> 114(2), e166-e176. http://www.ncbi.nlm.nih.gov/pubmed/15286253
CSBS-DP	Wetherby, A. & Prizant, B. (2002). Communication and Symbolic Behavior Scales Developmental Profile Infant/Toddler Checklist (CSBS-DP). Baltimore, MD: Paul H Brookes Publishing. http://www.brookespublishing.com/store/books/wetherby-csbsdip/index.htm
ESP	Feil, E. G., Severson, H. H., & Walker, H. M. (1998). Screening for emotional and behavioral delays: The Early Screening Project (ESP). <i>Journal of Early Intervention</i> , 21(3), 252-266. http://jei.sagepub.com/cgi/content/abstract/21/3/252
GADS	Gilliam, K. (2001). Gilliam Asperger Disorder Scale (GADS). Austin, TX: Pro-ed. http://www.proedinc.com/customer/ProductView.aspx?ID=822&sSearchWord=gads
GARS-2	Gilliam, J. (2006). Gilliam Autism Rating Scale 2nd Edition (GARS-2). North Tonawanda, NY: Multi-Health Systems Inc. http://www.mhs.com/product.aspx?gr=edu&prod=gars2&id=overview
GSEGC	Greenspan, S. (2004). Greenspan Social-Emotional Growth Chart. Boston, MA: Pearson Assessments and Information. http://pearsonassess.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8280-229&Mode=summary

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Tool	Citation
MCHAT	Robins, D., Fein, D., & Barton, M. (2001). Modified Checklist for Autism in Toddlers (MCHAT). http://www2.gsu.edu/~psydlr/Diana_L._Robins_Ph.D..html
PDD ST II	Siegel, B. (2004). Pervasive Developmental Disabilities Screening Test II (PDD ST II). San Francisco: University of California San Francisco. http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=076-1635-106&Mode=summary
SCQ	Rutter M., Bailey, A., & Lord, C. (2003). Social Communication Questionnaire (SCQ). Los Angeles: Western Psychological Services. http://portal.wpspublish.com/portal/page?_pageid=53,70432&_dad=portal&_schema=PORTAL
SRS	Constantino, J.N. (2003). Social Responsiveness Scale (SRS). Los Angeles, CA: Western Psychological Services. http://portal.wpspublish.com/portal/page?_pageid=53,70492&_dad=portal&_schema=PORTAL
STAT	Stone, W. & Ousley, O. (2004). Screening Tool for Autism in Two-Year-Olds (STAT). Nashville: Vanderbilt University. http://stat.vueinnovations.com/
TABS	Bagnato, S.J, Neisworth, J.T., Salvia, J.J., & Hunt, F.M. (1999). Temperament and Atypical Behavior Scale (TABS). Baltimore, MD: Paul H Brookes Publishing. http://brookespublishing.com/store/books/bagnato-tabs/index.htm

Attachment 2
Tools in Use by State Early Intervention and Early Childhood Special Education Programs for Diagnosing Autism Spectrum Disorders in Very Young Children

Tool	Citation
ADI-R	Le Couteur, A., Lord, C., & Rutter, M. (2003). Autism Diagnostic Interview-Revised (ADI-R). Ann Arbor, MI: University of Michigan Autism & Communication Disorders Center. http://www.umaccweb.com/diagnostic_tools/adiinfo.html
ADOS	Lord, C., Rutter, M., DiLavore, P., & Risi, S. (1999). Autism Diagnostic Observation Schedule (ADOS). Ann Arbor, MI: University of Michigan Autism & Communication Disorders Center. http://www.umaccweb.com/diagnostic_tools/index.html
CARS	Schopler, E., Reichler, R.J., Rochen Renner, B. (1999). Childhood Autism Rating Scale (CARS). Chapel Hill, NC: University of North Carolina Project TEACCH. http://www.teacch.com/publications.html#Assessment
DC: 0-3R	Zero to Three (2005). Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood, Revised (DC:0-3R). Washington, DC: Zero to Three https://secure2.convio.net/zttcfn/site/Ecommerce?VIEW_PRODUCT=true&product_id=1681&store_id=1121&JServSessionIdr002=t5oezbcj51.app206a
DSM IV-TR	American Psychiatric Association (2000). Diagnostic and Statistical Manual-Text Revision (DSM IV-TR). Arlington, VA: American Psychiatric Association. http://www.psych.org/mainmenu/research/dsmiv/dsmivtr.aspx
ICD-10	World Health Organization (2006). International Classification of Diseases (ICD-10). Geneva, Switzerland: World Health Organization. http://www.who.int/classifications/icd/en/
PEP-R	Schopler, E. (1990). Individualized Assessment and Treatment for Autistic and Developmentally Disabled Children: Psychoeducational Profile-Revised (PEP-R). Austin, TX: Pro-ed. http://www.polyxo.com/assessment
SIB-R	Bruininks, R.H., Woodcock, R.W., Weatherman, R.F., & Hill, B.K. (1996). Scales of Independent Behavior-Revised (SIB-R). Rolling Meadows, IL: Riverside Publishing http://www.riverpub.com/products/sibr/index.html