AHCCCS
Arizona Health Care Cost Containment System

Evidence-Based Practice Tool

Excerpted from
2016 Recommendations to the Office of the Arizona Governor Policy Advisor for Health and Human Services

Original: February 9, 2016
Update: May 31, 2017

How to Use the Evidence-Based Practice Tool

This Evidence-Based Practice Tool was developed to allow the user to assess the level of evidence available for a wide range of Autism Spectrum Disorder (ASD) interventions.

You'll find the following information in this tool:

Background

The Autism Spectrum Disorder (ASD) Advisory Committee was appointed in Spring 2015 by Christine Corieri, Policy Advisor for Health and Human Services, Office of the Arizona Governor. Dr. Sara Salek, Arizona Health Care Cost Containment System (AHCCCS) Chief Medical Officer and a child psychiatrist, served as point of contact between Ms. Corieri and the Committee.

The Committee was charged with articulating a series of recommendations to the State for strengthening the health care system's ability to respond to the needs of AHCCCS members with or at risk for ASD, including those with comorbid diagnoses. The charge included focusing on individuals with varying levels of needs across the spectrum, including those who are able to live on their own and those who may require institutional levels of care, and addressing both the early identification of ASD and the development of person-centered care plans.

Evidence-Based Treatment Work Group

Members of the Evidence-Based Practice Work Group are listed below. Work Group members who were also members of the ASD Advisory Committee are shown first and in bold, in alphabetical order.

- **Bryan Davey, PhD, BCBA-D,** Chief Executive Officer, Touchstone Health Services; President, Highland Behavioral
- **Joanna Kowalik, MD**, DES/DDD Acting Chief Medical Officer
- **Cynthia Macluskie**, Vice President, Board of Directors, Autism Society of Greater Phoenix
- **Terry Matteo, PhD**, Clinical Child Psychologist
- **Daniel Openden, PhD, BCBA-D**, President and CEO, Southwest Autism Research & Resource Center (SARRC)
- **Leslie Paulus, MD, PhD, FACP**, Medical Director, UnitedHealthcare Community Plan
- Aaron Blocher-Rubin, PhD, BCBA/LBA, Chief Executive Officer, Arizona Autism United

- Maureen Casey, DES—AzEIP Professional Development Coordinator
- Diana Davis-Wilson, MEd, BCBA, Clinical Director, Hope Group, LLC
- Maureen Mills, Communications Coordinator, Raising Special Kids
- Karrie Steving, Children's System of Care Administrator, Mercy Maricopa Integrated Care (MMIC), RBHA
- Jacob Venter, MD, CPE, FAPA, Division Chief of Psychiatry, Barrow Neurological Institute at Phoenix Children's Hospital
- Megan Woods, MEd, BCBA, LBA, DES/DDD Behavior Analyst

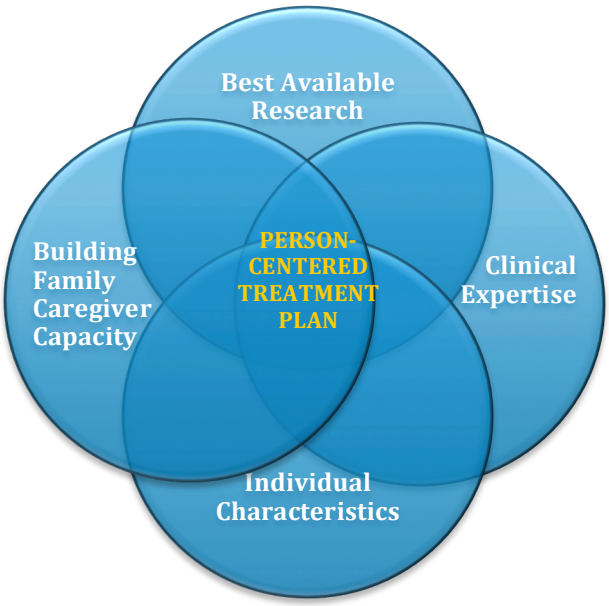
An independent consultant, Sharon Flanagan-Hyde, MA, Senior Partner, Flanagan-Hyde Associates, facilitated the Work Group and ASD Advisory Committee meetings. All meeting agendas, materials, notes, and updates were posted online.

Evidence-Based Practice Definition

The ASD Advisory Committee recommended use of an evidence-based practice definition that focuses on a person-centered plan (meaning an approach, not a specific model), starts with the best available scientifically rigorous research, and integrates clinical expertise, the individual's characteristics, and the goal of building family/caregiver capacity. Evidence-based practice is an approach to treatment rather than a specific treatment and incorporates culturally sensitive intervention strategies.

The intervention descriptions and analysis are intended to serve as a guide regarding categorization of treatments (i.e., established evidence and emerging evidence) and are not intended endorse or exclude any specific treatment. The Committee recognizes that there is not a "one size fits all" ASD treatment approach.

A person-centered treatment plan should be developed using an evidence-based approach: the intersection of research, clinical expertise, the individual's characteristics, and a focus on building family/caregiver capacity. Evaluations and treatments should be developmentally appropriate. Ongoing screening for comorbidities is essential to ensure that the needs of the whole person are addressed.



The ASD Advisory Committee recommended that AHCCCS use the following definition:

Evidence-based practice means a decision-making process that starts with the best available scientifically rigorous research and integrates clinical expertise, the individual's characteristics, and the goal of building family/caregiver capacity. Evidence-based practice is an approach to treatment rather than a specific treatment and incorporates culturally sensitive intervention strategies. It focuses on developing an individualized Person-Centered Plan. Evidence-based practice promotes the collection, interpretation, integration, and continuous evaluation of valid, important, and applicable individual- or family-reported, clinically-observed, and research-supported evidence. The best available evidence, matched to the individual's circumstances and preferences and a focus on building family and caregiver capacity, is applied to ensure the quality of clinical judgments and facilitate the most cost-effective care. (*Adapted from CA Trailer Bill*)

Development of the Evidence-Based Practice Tool

In response to the need for clarity about evidence-based treatment modalities, the Evidence-Based Treatment Work Group undertook a project that resulted in a major contribution to the field: an analysis of four large systematic review studies of ASD treatments.

In November 2015, ASD Committee member Terry Matteo, PhD, and his colleague Cindy Hoard, EdD, developed an analysis of the four systematic reviews that comprise this Evidence-Based Practice Tool.

The Work Group did not consider individual studies. Instead, it relied on systematic reviews of the published body of research on ASD interventions conducted by the following:

- National Professional Development Center/Autism Evidence-Based Practice Review Group at UNC Chapel Hill (**NPC**)
- U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services. (2010). *Autism Spectrum Disorders Services (ASDs): Final report on environmental scan.* Baltimore, MD: Young, J., Corea, C., Kimani, J., & Mandell, D. (**CMS**)
- National Standards Project – Phase 2: National Autism Center, A Center of May Institute: National Autism Center. (2015) (**NPS2**)
- The Department of Health and Human Services and the Agency for Healthcare Research and Quality. *Therapies for Children With Autism Spectrum Disorder: Behavioral Interventions Update. Comparative Effectiveness Review No. 137.* (**DHHS/AHRQ**)

These four studies represented all of the systematic studies or meta-analyses (quantitative re-analyses of data reported in published studies) available in late 2015. [There are no new systematic studies or meta-analyses as of May 2017.]

Definition of Experimental Services

The definition of Experimental Services, R9-22-203, used by AHCCCS, is presented below.

A. Experimental services are not covered. A service is not experimental if:

1. It is generally and widely accepted as a standard of care in the practice of medicine in the United States and is a safe and effective treatment for the condition for which it is intended or used.
2. The service does not meet the standard in subsection (A)(1), but the service has been demonstrated to be safe and effective for the condition for which it is intended or used based on the weight of the evidence in peer-reviewed articles in medical journals published in the United States.
3. The service does not meet the standard in subsection (A)(2) because the condition for which the service is intended or used is rare, but the service has been demonstrated to be safe and effective for the condition for which it is intended or used based on the weight of opinions from specialists who provide the service or related services.

B. The following factors shall be considered when evaluating the weight of peer-reviewed articles or the opinions of specialists:

1. The mortality rate and survival rate of the service as compared to the rates for alternative non-experimental services.
2. The types, severity, and frequency of complications associated with the services as compared with the complications associated with alternative non-experimental services.
3. The frequency with which the service has been performed in the past.
4. Whether there is sufficient historical information regarding the service to provide reliable data regarding risks and benefits.
5. The reputation and experience of the authors and/or specialists and their record in related areas.
6. The extent to which medical science in the area develops rapidly and the probability that more definite data will be available in the foreseeable future.
7. Whether the peer reviewed article describes a random controlled trial or an anecdotal clinical case study.

INTERVENTION DESCRIPTIONS

COMPREHENSIVE INTERVENTIONS

Comprehensive Interventions utilize multiple focused interventions that are organized around a central theoretical or conceptual framework, target multiple domains, and are typically longer in duration.

Comprehensive Behavioral Intervention Programs for Young Children: Interventions involving a combination of instructional and behavior change strategies and a curriculum that addresses core and ancillary symptoms and behaviors of ASD. (CMS) Examples include: Life Skills and Education for Students with Autism and Other Pervasive Behavioral Challenges (LEAP), Early Start Denver Model, UCLA Young Autism Project.

Structured Teaching: This intervention involves a combination of procedures that rely on the physical organization of a setting, predictable schedules, and individualized use of teaching methods. These teaching methods may be used in comprehensive interventions such as Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH) and LEAP.

FOCUSED INTERVENTIONS

Focused interventions refer to treatments that are typically shorter term in duration and target discrete skills.

Academic Interventions: Interventions involving the use of traditional teaching *methods to improve academic performance. (CMS)*

- **Direct Instruction:** Instructional package involving student choral responses, explicit signal to cue student responses, correction procedures for incorrect or non-responses, modeling correct responses, independent student responses. *(NPDC)*
- **Collaborative Coaching:** Systematic consultation across years to promote achievement of IEP goals. *(NPDC)*
- **Collaborative Learning:** Academic learning organized around joint activities and goals. *(NPDC)*
- **Handwriting Without Tears:** Multisensory activities promoting fine motor and writing skills. (NPDC)
- **Sentence Combining Technique**: Instructional package including teacher modeling, student practice, and worksheet to increase adjective use in writing. *(NPDC)*
- **Test Taking Strategy Instruction:** Instructional package including modeling, mnemonic devices, verbal practice sessions, controlled practice sessions, advanced practice sessions. *(NPDC)*

INTERVENTION DESCRIPTIONS
Antecedent Intervention/Package: Interventions involving the modifications of events that typically precede the occurrence of a target behavior. These alterations are made to increase the likelihood of success or reduce the likelihood of problems occurring. (CMS). Prompting, Time Delay and Stimulus Control/Environmental Modification are included within this category.
• **Prompting**: Verbal, gestural, or physical assistance given to learners to assist them in acquiring or engaging in a targeted behavior or skill. Prompts are generally given by an adult or peer before or as a learner attempts to use a skill. (NPDC)
Stimulus Control/ Environmental Modification: Term used by NPDC interchangeably with Antecedent-based Interventions. Interventions in which environmental modifications are used to change the conditions in the setting that prompts a learner to engage in an interfering behavior. The goal is to identify factors that are reinforcing the interfering behavior and then modify the environment or activity so that the factor no longer elicits the interfering behavior. (NPDC)
Auditory Integration Training: Intervention involving the presentation of modulated sounds through headphones in an attempt to retain an individual's auditory system with the goal of improving distortions in hearing or sensitivities to sound. (CMS)
Behavioral Package: Interventions designed to reduce problem behavior and teach functional alternative behaviors or skills through the application of basic principles of behavior change. (CMS) NPDC lists nine separate interventions that fit within this category as well as Behavior Momentum Intervention. NSP2 & CMS include Reductive Package within this category.
• **Differential Reinforcement**: Provision of positive/desirable consequences for behaviors or their absence that reduce the occurrence of an undesirable behavior. Reinforcement provided: a) when the learner is engaging in a specific desired behavior other than the inappropriate behavior; b) when the learner is engaging in a behavior that is physically impossible to do while exhibiting the inappropriate behavior; or c) when the learning is not engaging in the interfering behavior. (NPDC) This term is used by NPDC and in overall category of Positive Behavior Support Strategies or in Behavioral Package (NSP2 & CMS)
• **Exposure:** Interventions involving gradually increasing exposure to anxiety-provoking situations while preventing the use of maladaptive strategies used in the past under these conditions. (CMS) Also defined as the increasing or decreasing of the stimulus intensity or conditions to promote the occurrence of the desired response. (NPDC)
• **Extinction:** Withdrawal or removal of reinforcers of interfering behavior in order to reduce the occurrence of that behavior. Although sometimes used as a single intervention, extinction often occurs in combination with functional behavior assessment, functional communication training, and differential reinforcement. (NPDC)

INTERVENTION DESCRIPTIONS
• **Functional Behavior Assessment (FBA):** Systematic collection of information about an interfering behavior designed to identify functional contingencies that support the behavior. FBA consists of describing the interfering or problem behavior, identifying antecedent or consequent events that control the behavior, developing a hypothesis of the function of the behavior, and/or testing the hypothesis. (NPDC) The term is used by NPDC and in overall category of Positive Behavior Support Strategies and also used by NSP2 and CMS in the Behavioral Package.
• **Functional Communication Training (FCT):** Replacement of interfering behavior that has a communication function with more appropriate communication that accomplishes the same function. (NPDC) This term is used by NPDC and in overall category of Positive Behavior Support Strategies and is also used by NSP2 and CMS in the Behavioral Package.
• **Reinforcement**: An event, activity, or other circumstance occurring after a learner engages in a desired behavior that leads to the increased occurrence of the behavior in the future. (NPDC) Included in Behavioral strategies category & Behavioral Package (NSP2 & CMS)
• **Removal of Restraints:** Gradual removal of restraints involving application of pressure to arm, shadowing. (NPDC) Included in Behavioral Strategies category
• **Response Interruption/Redirecting:** Introduction of a prompt, comment, or other distracter when an interfering behavior is occurring that is designed to divert the learner's attention away from the interfering behavior and results in its reduction. (NPDC) Included in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS)
• **Task Analysis & Chaining:** A process in which an activity or behavior is divided into small, manageable steps in order to assess and teach the skill. Other practices, such as reinforcement, video modeling, or time delay, are often used to facilitate acquisition of the smaller steps. (NPDC) Included in Behavioral Strategies category; Behavioral Package (NSP2 & CMS)
Cognitive Behavioral Interventions: Interventions designed to change negative or unrealistic thought patterns and behaviors with the aim of positively influencing emotions and life functioning. (CMS) Also described as instruction on the management or control of cognitive processes that lead to changes in overt behavior. (NPDC) Referred to as Cognitive Behavioral Intervention Package by NSP2 & CMS; AHRQ identified the specific use of CBT with anxiety as showing Established Evidence. NPDC identified "Schema-based Strategy Instruction" as showing emerging evidence (i.e., insufficient evidence to be included in the Established Evidence category).

INTERVENTION DESCRIPTIONS
Computer-aided Treatment /(Technology-aided) Instruction: These interventions require the presentation of instructional materials using the medium of computers or related technologies. (CMS) NPDC used a category called Technology-aided Instruction and Intervention. CMS & NSP2 used a category called "Technology-based Treatment. NPDC included the definition of technology as "any electronic item/equipment/application/or virtual network that is used intentionally to increase/maintain, and/or improve daily living, work/productivity, and recreation/leisure capabilities of adolescents with autism spectrum disorder (Odom, Thompson, et al., 2013). (NPDC).
Developmental Relationship–based Treatment: Interventions involving a combination of procedures that are based on developmental theory and emphasize the importance of building social relationships. (CMS). This category overlaps with Parent Training (AHRQ) since they included DIR/Floortime Research in their Parent Training category.
Exercise: Interventions involving an increase in physical exertion as a means of reducing problem behaviors or increasing appropriate behavior. (CMS) NPDC – found established evidence for use of exercise to decrease problem behaviors and increase positive behaviors. NSP2 found an emerging level of evidence.
Joint Attention (JA) Intervention (Intervention and Outcome): Interventions involving teaching a child to respond to the nonverbal social bids of others or to initiate joint attention interactions. (CMS) CMS treated JA as an intervention. JA has been linked to increases in communication and symbolic play. NSP2 included JA in the Behavioral Package. NPDC & AHRQ treated JA as an outcome. Interventions in this category overlap with multiple NPDC categories including JA-Symbolic Play Instruction; AHRQ - Play-based intervention for JA as outcome.
Language Training: Interventions that have as their primary goal to increase speech production. (CMS) CMS identified Language Production as having an emerging level of evidence. NSP2 identified more studies that showed established evidence for Language Training (production). NSP2 included Language Training for Understanding (comprehension) as an emerging evidence category.
Modeling: Interventions relying on an adult or peer providing a demonstration of the target behavior that should result in an imitation of the target behavior by the individual with ASD. (CMS) NPDC noted that modeling is often combined with prompting and reinforcement. NPDC included both Modeling and Video Modeling (use of video recording) as separate established evidence categories. CMS included modeling in the emerging evidence category. NSP2 also included a new category called Imitation-based Intervention – and showed emerging evidence for this intervention.

INTERVENTION DESCRIPTIONS
Multi-component Package: These interventions involve a combination of multiple treatment procedures that are derived from different fields of interest or different theoretical orientations. These treatments do not better fit one of the other treatment "packages" listed above nor are they associated with specific treatment programs. Examples are: The Family Support Program, Multicomponent Teaching Package.
Music Therapy: Interventions that teach individuals skills through music *(NPDC, CMS, NSP2)*
Naturalistic Interventions: Interventions involving using primarily child-directed interactions to teach functional skills in the natural environment. They often focus on providing a stimulating environment, modeling how to play, encouraging conversation, providing choices and direct/natural reinforcers, and rewarding reasonable attempts. (CMS); Intervention strategies usually occur during typical setting/activities/routines; establish the learner's interest through arrangement of the setting/activity/routine, provide necessary support for the learner to engage in the targeted behavior when it occurs, and arrange natural consequences for the targeted behavior. (NPDC) *NSP2 & CMS use the term Naturalistic Teaching Strategies*
Parent Implemented Interventions: Interventions involving parents delivering the intervention to their child to improve/increase a wide variety of skills and/or to reduce interfering behaviors. Parents learn to deliver interventions in their home and/or community through a structured parent training program. Parent Training Approaches/ overlap with Symbolic Play and Play-based Interventions. (AHRQ) AHRQ included DIR/Floortime studies in this group. Examples include: Social Communication Intervention, ESDM, DIR/Floortime; Joint Attention Intervention, Joint Attention Symbolic Play Engagement and Regulation (JASPER). NPDC & NSP2 grouped studies that were identified as showing established evidence. AHRQ identified the category at the emerging level.
Peer Mediated Interventions: Typically developing peers interact with and/or help children and youth with ASD to acquire new behavior, communication, and social skills by increasing social and learning opportunities within natural environments. Teachers/service providers systematically teach peers strategies for engaging children and youth with ASD in positive and extended social interactions in both teacher-directed and learner-initiated activities. (NPDC). NSP2 and CMS use Peer Training Package; NPDC also uses Structured Play Group (a group including both typically developing peers and children with ASD); NSP2 included Initiation Training (in the emerging evidence category).

INTERVENTION DESCRIPTIONS
Picture Exchange Communication System (PECS): This intervention involves the application of a specific augmentative and alternative communication system based on behavioral principles that are designed to teach functional communication to children with limited verbal and/or communication skills. (CMS) Learners are initially taught to give a picture of a desired item to a communicative partner in exchange for a desired item. (NPDC). *NPDC, NSP2 & CMS consistently use this term.*
Pivotal Response Training (PRT): This treatment is also referred to as PRT, Pivotal Response Teaching, and Pivotal Response Treatment. PRT focuses on targeting "pivotal" behavior areas, such as motivation to engage in social communication, self-initiation, self-management, and responsiveness to multiple cues, with development of these areas having the goal of very widespread and fluently integrated collateral improvements. (CMS) Term used by NPDC; Pivotal Response Treatment (NSP2 & CMS); Included in Parent Training Approaches (AHRQ)
Schedules: Interventions involving the presentation of a task that communicates a series of activities or steps required to complete a specific activity. Schedules are often supplemented by other interventions such as reinforcement. (CMS) NSP2 & CMS included schedules. This overlaps with Structured Work Systems and Visual Supports (NPDC)
Sensory/Massage – Sensory Regulation: This category utilizes sensory input: tactile, vestibular, auditory, and proprioceptive - to improve behavior. • **Massage** (CMS included Touch w/ Massage): Interventions involving the provision of deep tissue stimulation (CMS) • **Music Intensity:** Different levels of music volume (auditory input) used to affect vocal stereotypy (NPDC) • **Sensory Diet:** Sensory based activities integrated into child routines to meet sensory needs. (NPDC) • **Sensory Integration & Fine Motor Intervention:** Therapeutic activities characterized by enhanced sensation, especially tactile, vestibular, and proprioceptive; with active participation and adaptive interaction paired with individual fine motor instruction from OT. (NPDC) • **Touch-Point Instruction:** Tactile and number line materials used to introduce math and numeracy concepts. (NPDC)
Self-Management: These interventions involve independence by teaching individuals with ASD to regulate their behavior by recording the occurrence/non-occurrence of the target behavior, and securing reinforcement for doing so. Initial skills development may involve other strategies and may include the task of setting one's own goals. (CMS) This term is used consistently by NPDC, NSP2 & CMS; Self-Regulatory Strategy Development Writing (NSP2)

INTERVENTION DESCRIPTIONS
Social Communication Intervention: These interventions psychosocial interventions involve targeting some combination of impairments such as pragmatic communication skills, and the ability to successfully read social situations. (CMS) Interventions included in this category by NSP2 & CMS are included in the AHRQ Parent Training Approaches Category
Social Narratives: These treatments involve a written description of the situations under which specific behaviors are expected to occur. Stories may be supplemented with additional components (e.g., prompting, reinforcement, discussion, etc.). (CMS) These narratives describe in some detail the relevant cues of social situations and offer examples of appropriate responding. (NPDC) This intervention overlaps with Story-based Intervention Package (NSP2 & CMS) overlaps with Scripting (NSP2 & CMS)
Social Skills Intervention: These interventions seek to build social interaction skills in children with ASD by targeting basic responses (e.g., eye contact, name response) to complex social skills (e.g., how to initiate or maintain a conversation). (CMS) Social Skills Training Group (NPDC) is similar to Social Skills Package (NSP2 & CMS) and Social Skills Training (AHRQ); Initiation Training (CMS)
Speech Generating Strategies: Interventions involving the use of high or low devices to facilitate communication. Examples include but are not restricted to: pictures (PECS), photographs, symbols, communication books, computers, or other electronic devices. (NPDC) also referred to as VOCA overlaps with Augmentative and Alternative Communication Devices (NSP2 & CMS); NPDC Aided Language Modeling; Sign Instruction (NSP2)
Theory of Mind: These interventions are designed to teach individuals with ASD to recognize and identify mental states (i.e., a person's thoughts, beliefs, intentions, desires, and emotions) in oneself or in others and to be able to take the perspective of another person in order to predict their actions. (CMS) CMS, NPDC & NSP2 identified category at the emerging level.
Toilet Training: Modifications of toilet training program developed by Arin & Fox (1971). (NPDC) An isolated skill.

Study Descriptions and References

1. (**NPDC**) National Professional Development Center/Autism Evidence-Based Practice Review Group at UNC Chapel Hill: Wong, C., Odom, S. L., Hume, K. Cox, A. W., Fettig, A., Kucharczyk, S., Schultz, T. R. (2014). *Evidence-based practices for children, youth, and young adults with Autism Spectrum Disorder.* Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group.
2. (**CMS**) The Centers for Medicaid & Medicare Services commissioned a review of existing services for ASD: U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services. (2010). *Autism Spectrum Disorders Services (ASDs): Final report on environmental scan.* Baltimore, MD: Young, J., Corea, C., Kimani, J., & Mandell, D.
3. (**NSP2**) National Standards Project – Phase 2: National Autism Center, A Center of May Institute: National Autism Center. (2015). *Findings and conclusions: National standards project, phase 2*. Randolph, MA.
4. (**DHHS/AHRQ**) The Department of Health and Human Services and the Agency for Healthcare Research and Quality commissioned Vanderbilt University to complete a systematic review of the ASD research: Weitlauf A.S., McPheeters M.L., Peters B., Sathe N., Travis R., Aiello R., Williamson E., Veenstra-VanderWeele J., Krishnaswami S., Jerome R., Warren Z. *Therapies for Children With Autism Spectrum Disorder: Behavioral Interventions Update. Comparative Effectiveness Review No. 137.* (Prepared by the Vanderbilt Evidence-based Practice Center under Contract No. 290-2012-00009-I.) AHRQ Publication No. 14-EHC036-EF. Rockville, MD: Agency for Healthcare Research and Quality; August 2014. www.effectivehealthcare.ahrq.gov/reports/final.cfm.

For each of the four reviews in the table below, symbols represent the following categories:

- Level 1: Established Evidence (solid bullet)
- * Level 2: Emerging Evidence (asterisk)

The absence of a symbol indicates that the intervention was not addressed in the study.

INTERVENTION	NPDC 2014	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
	SYSTEMATIC REVIEWS				TARGET/OUTCOMES				
COMPREHENSIVE INTERVENTIONS									
Comprehensive Behavioral Intervention Programs for Young Children *(NSP2 & CMS) also referred to as Early Intensive Behavioral and Developmental Interventions (AHRQ); Early Intensive Behavior Interventions (EIB) or behavioral inclusive programs (NSP2). All utilize ABA principles. Ex. LEAP, ESDM, UCLA Young Autism Project.*	•	•	•	• *	√ √	√	√ √	√	√ √
Structured Teaching *(NSP2 & CMS) describes programs such as TEACCH; (AHRQ) and overlaps with Structured Work Systems which are one component of Structured Teaching in TEACCH and LEAP.*		•	*	• *	√ √	√	√ √	√	√ √
FOCUSED INTERVENTIONS									
Academic *(CMS)*		*			√	√		√	√
• **Direct Instruction** *(NPDC)*	*						√		
• **Collaborative Coaching** *(NPDC)*	*							√	
• **Collaborative Learning** *(NPDC)*	*				√			√	
• **Handwriting Without Tears** (NPDC)	*							√	
• **Sentence Combining Technique** *(NPDC)*	*							√	
• **Test Taking Strategy Instruction** *(NPDC)*	*							√	

INTERVENTION	NPDC 2014	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
	SYSTEMATIC REVIEWS				TARGET/OUTCOMES				
Antecedent Intervention/Package *(NSP2 & CMS) groups a variety of antecedent-based Interventions; NPDC uses 3 categories: Prompting, Time Delay and Stimulus Control/Environmental Modification (also referred to as Antecedent-based Interventions)*	•	•			√	√	√		√
• **Prompting** *Term used by NPDC and included in Behavioral Strategies category; Antecedent Package (NSP2 & CMS)*	•		•		√	√	√	√	√
• **Stimulus Control/ Environmental Modification** *Term used by NPDC interchangeably with Antecedent-based Interventions and included in overall category of Positive Behavioral Support Strategies: Antecedent Package (NSP2 & CMS)*	•								
Auditory Integration Training *(NPDC)*	*								
Behavioral Package *(NSP2 & CMS) groups a variety of behaviorally based interventions: NPDC lists nine separate interventions that fit within this category as well as Behavior Momentum Intervention. NSP2 & CMS use Reductive Package within this category*	•	•	•		√	√	√	√	√
• **Differential Reinforcement** *Term used by NPDC and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS)*	•				√	√	√	√	√
• **Exposure** *Term used by (NSP2)*	*		*						
• **Extinction** *Term used by NPDC and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS)*	•					√	√		√
• **Functional Behavior Assessment *Term*** *used by NPDC and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS)*	•		*			√	√		√

INTERVENTION	NPDC 2014	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
	SYSTEMATIC REVIEWS				TARGET/OUTCOMES				
• **Functional Communication Training** *Term used by NPDC and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS)*	•				√	√	√		√
• **Reinforcement** *Term used by NPDC and included in Behavioral strategies category; Behavioral Package (NSP2 & CMS)*	•				√	√	√	√	√
• **Removal of Restraints** *NPDC included in Behavioral strategies category*	*								
• **Response Interruption/Redirecting** *Term used by NPDC and in overall category of Positive Behavior Support Strategies; Behavioral Package (NSP2 & CMS)*	•				√	√	√	√	√
• **Task Analysis & Chaining** *Terms used by NPDC and included in Behavioral strategies category; Behavioral Package (NSP2 & CMS)*	•					√			
Cognitive Behavioral Interventions *Cognitive Behavioral Intervention Package (NSP2 & CMS); Cognitive Behavioral Therapy – specific for anxiety (AHRQ) Schema-Based Strategy Instruction (NPDC)*	• *	•	•	•	√ √	√	√	√	√
Computer-aided Treatment/Technology-aided Instruction *Use of Technology-based Treatment (CMS, NSP2); Technology-aided instruction (NPDC)*	•	•	*		√	√	√	√	√
Developmental Relationship–based *(CMS); Developmental-Relationship-based Treatment (NSP2): Overlaps with Parent Training (AHRQ)*		*	*		√	√	√		√
Exercise (*NSP2 &NPDC)*	•		*						

INTERVENTION	NPDC 2014	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
	SYSTEMATIC REVIEWS				TARGET/OUTCOMES				
Joint Attention Intervention (Intervention and Outcome) *(CMS) treated JA as intervention; NSP2 included JA in Behavioral Package: NPDC & AHRQ treated joint attention as an outcome, interventions in this category overlap with multiple NPDC categories including JA-Symbolic Play Instruction; AHRQ - play-based intervention for JA as outcome.*	*	•	•	•	√	√	√	√	
Language Training (*NSP2) also referred to as Language Production (CMS); NSP2 (also included Language Training for Understanding (emerging category)*		*	• *		√	√			
Modeling *(NSP2 & CMS) overlaps with Video Modeling (NPDC); Imitation-based Intervention (NSP2)*	•	*	•		√	√		√	√
Multi-component Package *This term is used only by NSP2 and CMS to describe interventions that do not clearly fit in another category*		•	*		√	√	√	√	√
Music Therapy *(NPDC, CMS, NSP2)*	*	*	*		√	√	√	√	√
Naturalistic Interventions • *Term used by NPDC; NSP2 & CMS uses the term Naturalistic Teaching Strategies*	•	•	•		√	√	√		

INTERVENTION	NPDC 2014	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
	SYSTEMATIC REVIEWS				TARGET/OUTCOMES				
Parent Implemented Interventions *Parent Training Approaches/ overlap with Symbolic Play and Play-based Interventions (AHRQ) (New to NSP2) AHRQ included DIR/Floortime studies in this group.*	•		•	*	√	√	√		√
Peer Mediated Interventions *Term used by NPDC; NSP2and CMS use Peer Training Package; NPDC also uses Structured Play Group; NSP2 uses Initiation Training as well*	•	•	•		√	√		√	
Picture Exchange Communication System (PECS) *NPDC, NSP2 and CMS consistently use this term.*	•	•	*		√	√	√		
Pivotal Response Training (PRT) *Term used by NPDC; Pivotal Response Treatment (NSP2 & CMS); included in Parent Training Approaches (AHRQ)*	•	*	•	*	√	√	√		
Schedules *(NSP2& CMS) overlaps with Structured Work Systems and Visual Supports (NPDC)*		•	•		√	√	√	√	√
Sensory/Massage – Sensory Regulation • **Massage** *(CMS included Touch w/ Massage)* • **Music Intensity** *(has to do with sensory input)* • **Sensory Diet** • **Sensory Integration & Fine Motor Intervention** • **Touch Point Instruction/Touch Therapy**	 * * * *	* 	* 						

INTERVENTION	NPDC 2014	CMS - IMPAQ 2010	NSP2 2014	DHHS - AHRQ 2014	SOCIAL	COMMUNICATION	BEHAVIOR	ACADEMIC/ COGNITIVE	ADAPTIVE
	SYSTEMATIC REVIEWS				TARGET/OUTCOMES				
Self-Management *This term is used consistently by NPDC, NSP2 & CMS; Self-Regulatory Strategy Development Writing (NSP2)*	•	*	•		√	√	√	√	
Social Communication Intervention *Interventions included in this category by NSP2 & CMS are included in the AHRQ Parent Training Approaches Category*		•	*		√	√			
Social Narratives *(NPDC) overlaps with Story-based Intervention Package (NSP2 & CMS) overlaps with Scripting (NSP2 & CMS)*	•	•	•		√	√	√	√	√
Social Skills Intervention *Social Skills Training Group (NPDC) is similar to Social Skills Package (NSP2 & CMS) and Social Skills Training (AHRQ); Initiation Training (CMS)*	•	•	•		√	√	√		
Speech Generating Strategies *(NPDC) also referred to as VOCA overlaps with Augmentative and Alternative Communication Devices (NSP2 & CMS); NPDC Aided Language Modeling; Sign Instruction (NSP2)*	*	*	*		√	√			
Theory of Mind	*	*	*		√	√		√	
Toilet Training *(NPDC, isolated skill)*	*								√