Applied Behavior Analysis for the Treatment of Autism

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This Medical Policy document describes the status of medical technology at the time the document was developed. Since that time, new technology may have emerged, or new medical literature may have been published. This Medical Policy will be reviewed regularly and updated as scientific and medical literature becomes available; therefore, policies are subject to change without notice.

Related Policies:

- Not Applicable

Applicability: Federal Employee Program (FEP)

Note: *The member's benefit plan determines coverage, applied behavior analysis (ABA) therapy for all other indications except for the treatment of autism will be considered a non-covered benefit.*

Summary

Description

Autism spectrum disorder (ASD) is a lifelong biologically based neurodevelopmental disorder characterized by persistent deficits in social communication and social interaction and restricted, repetitive patterns of behavior, interests, and activities. Applied behavior analysis (ABA) is therapeutic approach comprised of multiple techniques in which environmental variables are identified that influence socially significant behavior and are used to develop individualized and practical strategies to teach basic skills such as communication, adaptive skills, or social interactions. ABA therapy may be performed by, or supervised by, a certified ABA provider, such as a licensed applied behavior analyst (LABA) or a trained, licensed psychologist. Clinical guidance has identified ABA and/or other developmental and naturalistic approaches as examples of potential components to include in a Comprehensive Treatment Model in children with ASD.

Summary of Evidence

For children with autism spectrum disorder (ASD) who receive applied behavior analysis (ABA), the evidence includes multiple meta-analyses, one of which is an individual participant meta-analysis of nonrandomized studies, randomized controlled trials (RCTs) and case series. Relevant outcomes are symptoms, functional outcomes, and quality of life. In 2021. Rogers et. al. completed an international collaborative individual participant meta-analysis on the effectiveness of early intensive ABA based interventions for pre-school autistic children compared with treatment of as usual/eclectic interventions. Data from 491 participants from 10 nonrandomized studies were included. Follow-up was limited to 1-2 years in most studies. Early intensive applied behavior analysis-based interventions resulted in greater improvements on the Vineland adaptive behavior scale and cognitive ability (intelligence quotient) related to comparators at 2 years, though effects varied considerably across studies. All studies were at risk of bias across several domains, often due to the lack of randomization and blinding of outcome accessors. A subsequent meta-analysis including additional studies (N=362), all of low methodological quality, had similar findings. Thus, further comparative studies on which interventions are most effective with longer-term follow-up are needed. The evidence is insufficient to determine that the technology results in an improvement in net health outcomes. However, because ABA is often used and endorsed by the American Academy of Pediatrics (Hyman et. al. 2020) as the basis for most evidence-based treatment models that are used in the identification, evaluation and management of children with ASD. Therefore, ABA therapy will be considered medically necessary for the treatment of ASD when the Policy criteria is met below.

For adults with ASD who receive ABA, the evidence includes a systematic review of 13 studies of various psychosocial interventions. Relevant outcomes are symptoms, functional outcomes, and quality of life. Because there are no comparative studies on ABA for individuals 18 years of age and older with ASD, it is not possible to determine with confidence whether ABA improves symptoms, quality of life, or functional impairment. Among the 13 total studies, the single systematic review included 5 single case studies of 5 individuals 18 years of age and older with ASD and coexisting developmental disorders evaluating various focused ABA interventions. Although the results from all the case studies were positive in nature, they are significantly limited by imprecision (N=5) and the lack of comparison to an established alternative

treatment using an outcome measurement instrument with a prespecified clinically significant difference. Further comparative research is needed in a larger number of adults with ASD, preferably in a clearly defined population, compared to a clearly defined established comparator, using established outcome measurements with prespecified clinically significant differences. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

OBJECTIVE

The objective of this evidence review is to assess whether applied behavior analysis improves the net health outcome in the management of autism spectrum disorder.

PRIOR APPROVAL

Prior approval required.

Note: The intent of this medical policy is to address ABA therapy for the treatment of autism in the outpatient setting.

Providers will need to complete the following prior approval form for all outpatient prior approval requests:

- The following FEP Prior Approval Form: p8318710-ABA-PriorApproval-FEP.pdf is to be completed and submitted for all prior approval requests for outpatient ABA therapy services to include the ABA treatment assessment, the initial ABA treatment service request and continuation of therapy requests.

POLICY

Applied Behavior Analysis (ABA) Therapy Provided Inpatient, Residential or Partial Hospitalization Settings

If ABA therapy is provided as part of the treatment plan in an inpatient, residential or partial hospitalization setting, medical necessity at that level of care will be inclusive of this therapy, an additional authorization specific to the ABA therapy is not needed.

If prior to discharge from one of these higher levels of care, if ongoing ABA therapy is part of the individual's outpatient treatment plan a medical necessity review will need to be completed using the guidelines below for the outpatient ABA therapy.

Note: *The member's benefit plan determines coverage and ABA therapy for all other indications* *except* *for the treatment of autism is considered a* ***non-covered benefit****.*

Outpatient Applied Behavior Analysis (ABA) Therapy

Coverage for outpatient applied ABA may be subject to the following:

- Care management requirements
- Subject to any deductibles, copayments or coinsurance provisions that apply to the medical or surgical services covered under the plan.
- ABA therapy services are subject to prior approval; however, prior approval does not guarantee coverage.

Benefits are not available for the following:

- Therapy duplicates services provided by educational setting and/or is part of scholastic education.
- Treatment is not clinically appropriate in terms of type, frequency, extent, site, and duration.
- Treatment is primarily for the convenience of the patient, physician, or other health care provider (ABA is therapy, not babysitting).
- Member does not have the diagnosis of ASD.

Note: *The member's benefit plan determines coverage and educational classes and programs when performed for applied behavior analysis when performed as part of an educational class or program; or provided in or by a school/educational setting; or provided as a replacement for services that are the responsibility of the educational system is considered a* ***non-covered benefit.***

Patient/Caregiver Support

Parent/Caregiver support is expected to be a component of the ABA therapy program, as they will need to provide additional hours of behavioral interventions. However, parent support groups are considered **not medically necessary.**

Applied Behavior Analysis (ABA) Treatment Assessment
The initial assessment of care of autism spectrum disorder (ASD) for applied behavior analysis (ABA) therapy may be considered **medically necessary** when **ALL** the following criteria are met:

- Individual has a diagnosis of ASD consistent with the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association criteria above; **and**

- A medical evaluation including neurological examination has been completed; **and**
- Any individual who is providing or supervising applied behavior analysis shall:
    - Be licensed as a medical doctor, doctor of osteopathy, or psychologist in the state in which the applied behavior analysis services are being performed; **or**
    - Behavior Analyst Certification Board, Inc (BACB) certified providers (undergraduate-level certification in behavior analysis must be supervised by someone certified at the BCBA/BCBA-D level; may supervise RBT's, and others who implement behavior-analytic interventions).

Applied Behavior Analysis (ABA) to Initiate Care

ABA therapy may be considered **medically necessary** when **ALL** the following criteria are met:

- Individual has a diagnosis of ASD consistent with the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association criteria above; **and**

- Any individual who is providing or supervising applied behavior analysis shall:

    - Be licensed as a medical doctor, doctor of osteopathy, or psychologist in the state in which the applied behavior analysis services are being performed; **or**
    - Behavior Analyst Certification Board, Inc (BACB) certified providers (undergraduate-level certification in behavior analysis must be supervised by someone certified at the BCBA/BCBA-D level; may supervise RBT's, and others who implement behavior-analytic interventions).

- The ABA services recommended do not duplicate services provided or available to the member by other medical or behavioral health professionals. Examples include but are not limited to behavioral health treatment such as individual, group, and family therapies; occupational, physical and speech therapies; **and**

- Approved treatment goals and clinical documentation must be focused on active ASD core symptoms and deficits that inhibit daily functioning. This includes a plan for stimulus and response generalization in novel contexts; **and**

- For ***comprehensive treatment*** the requested ABA services are directed toward reducing the gap between the member's chronological and developmental ages such that the member can develop or restore function to the maximum extent practical; and/**or**

- For ***focused treatment*** the requested ABA services are designed to reduce the burden of selected treatment targeted symptoms on the member, family, and other significant people in the environment, and to target increases in appropriate alternative behaviors; **and**

- Treatment is provided at the least restrictive and most clinically appropriate environment to deliver care safely, effectively, and efficiently; **and**

- Treatment intensity does not exceed the member's functional ability to participate and/or is not for the convenience of the patient, caregiver, treating provider or other professional; **and**

- Treatment is clinically appropriate and designed to meet the individualized needs of the member regarding type, frequency, intensity, extent, site, and duration of services; **and**

- Treatment occurs in the setting(s) where target behaviors are occurring and/or where treatment is likely to have an impact on target behaviors; **AND**

A comprehensive medical record is submitted by the individual providing or supervising applied behavior analysis (*see above provider requirements*) to include:

- All initial assessments performed: Preferred assessments must be developmentally and age appropriate and include the ABLLS, VB-MAPP, or other developmental measurements employed; **and**

- Individualized treatment plan with clinically significant and measurable goals that clearly address the active symptoms and signs of the individual's core deficits of ASD; **and**

- Goals should be written with measurable criteria that can be reasonably achieved within six months; **and**

- Goals should include documentation of core symptoms of ASD identified on the treatment plan, date of treatment introduction, estimated date of mastery, and a specific plan for generalization of skills; **and**

- Functional Behavior Assessment to address targeted problematic behaviors with operational definition and provide data to measure progress, as clinically indicated; **and**

- Documentation of treatment participants, procedures and setting; **and**

    - The treatment plan must include a plan to support the individual's ability to generalize skills across stimuli, contexts, and individuals, via caregiver training or an appropriate alternative. Provider should be able to demonstrate how operational control will be transferred to caregivers.
    - Although not required for the initial service request, transition and aftercare planning should begin during the early phases of treatment.

Notes:

- *Telehealth/ Telemedicine is not an approved method of service delivery for direct ABA services (e.g., 97153, 97154, 0373T). Telehealth/ Telemedicine for parent education (e.g., 97156 and 97157) and direct supervision (e.g., 97155) activities can be covered if allowed as an eligible telehealth/ telemedicine service under the member benefit plan. It is recommended that telehealth/ telemedicine service delivery be combined with face- to- face service delivery of direct supervision activities.*

- *ABA therapy services are subject to prior approval; however, prior approval does not guarantee coverage.*

- *The authorization approval for ABA therapy services is not inclusive of other services being provided (i.e., occupational therapy, speech therapy, physical therapy, educational services (day care, preschool, school, early interventional services), etc.). The approval is specific to only applied behavior analysis therapy.*

- *A medical necessity review of the individual's progress in meeting the objectives of the treatment plan shall be reviewed every six months unless it is determined that an earlier review is required,*

medical necessity review requests for the treatment of an individual receiving ABA therapy may be requested no more than every 3 months.

- *Documentation of onsite supervision of the applied behavior analysis must be provided.*

Continued Treatment Service Request for Applied Behavior Analysis (ABA)

The continuation of ABA therapy may be considered **medically necessary** when **ALL** the following criteria are met:

- ABA services recommended do not duplicate services provided or available to the individual by other medical or behavioral health professionals. Examples include but are not limited to behavioral health treatment such as individual, group, and family therapies; occupational, physical, and speech therapies; **and**

- Approved treatment goals and clinical documentation must be focused on active ASD core symptoms and deficits that inhibit daily functioning. This includes a plan for stimulus and response generalization in novel contexts; **and**

- Adaptive Behavior Testing (such as the Vineland Adaptive Behavior Scale (VABS), and Adaptive Behavior Assessment System (ABAS), Behavior Assessment System for Children: Adaptive Skills (BASC 3), Pervasive Developmental Disorder Behavior Inventory (PDDBI)) *completed annually*; **and**

Any individual who is providing or supervising ABA shall:

- Be licensed as a medical doctor, doctor of osteopathy, or psychologist in the state in which the applied behavior analysis services are being performed; **or**

- Behavior Analyst Certification Board, Inc (BACB) certified providers (undergraduate-level certification in behavior analysis must be supervised by someone certified at the BCBA/BCBA-D level; may supervise RBT's, and others who implement behavior-analytic interventions); **AND**

A complete medical record is submitted by the individual providing or supervising applied behavior analysis (*see above provider requirements)* to include:

- Collected data, including additional non-standardized testing such as ABLLS, VB-MAPP or other developmentally appropriate assessments, celebration charts, graphs, progress notes that link to interventions of specific treatment plan goals/objectives; **and**

- Individualized treatment plan with clinically significant and measurable goals that clearly address the active symptoms and signs of the member's core deficits of ASD and progress made across all targeted areas; **and**

- Goals should be written with measurable criteria that can be reasonably achieved within six months; **and**

- Goals should include documentation of core symptoms of ASD identified on the treatment plan, date of treatment introduction, measured baseline of targeted goal, objective present level of behavior, mastery criteria, estimated date of mastery, a specific plan for generalization of skills, and the number of hours per week estimated to achieve each goal; **and**

- Functional Behavior Assessment to address targeted problematic behaviors with operational definition and provide data to measure progress, as clinically indicated; **and**

- Documentation of treatment participants, procedures and setting; **AND**

On concurrent review, the current ABA treatment demonstrates significant improvement and clinically significant progress to develop or restore the function of the individual:

- Significant improvement is mastery of a minimum of 50 percent of stated goals found in the submitted treatment plan.

- For an individual who does not master 50 percent of stated goals and/or fail to demonstrate measurable and substantial evidence toward developing or restoring the maximum function the treatment plan should clearly address the barriers to treatment success.

- There are reasonable expectations of mastery of proposed goals within the requested six-month treatment period and that achievement of goals will assist in the individuals independence and functional improvements. (***Note****: when goals are achieved, either new goals should be identified or the treatment plan should be revised to include a transition to less intensive interventions, see Transition and aftercare planning below.*)

- If six-month goals are continued into the next treatment plan, these goals must be connected to long-term goals that are clinically significant and with a reasonable expectation of mastery. When the mastery criteria have been modified to meet an incremental short-term objective, the overall goal is to be considered “continued.”

- There is a reasonable expectation that the individual is able to, or demonstrate the capacity to, acquire and develop clinically significant generalized skills to assist in his or her independence and functional improvements.

- If the individual does not demonstrate significant improvement or progress achieving goals for successive authorization periods, benefit coverage of ABA services may be reduced or denied.

- The treatment plan for generalization of skills includes:

    - A plan for caregiver training that includes assessment of the caregivers’ skills, measurable goals for skill acquisition and monitoring of the caregivers’ use of skills. Generalization of skills should be assessed during parent/caregiver training to ensure the individual can demonstrate skill with caregivers in the natural environment during non-therapeutic times. Documentation should include the caregivers’ ability to implement treatment plan procedures and evaluation of the following areas:

        - Individuals’ ability to demonstrate the use of replacement skills and/or reductions in aberrant behavior in natural settings.

    - Family/caregivers' ability to successfully prompt and teach skills and effectively utilize behavior reduction strategies.
    - An alternative plan if caregivers' participation does not result in generalization of skills.

- Transition and aftercare planning should:

    - Begin during the early phases of treatment and will change over time based upon response to treatment and presented needs.

    - Focus on the skills and support required for the individual for transitioning toward their natural environment, as appropriate to their realistic developmental abilities.

    - Identify appropriate services and support for the time period following ABA treatment.

    - Include a planning process and documentation with active involvement and collaboration with a multidisciplinary team to include caregivers.

    - Long term outcomes must be developed specifically for the individual with ASD, be functional in nature, and focus on skills needed in current and future environments.

    - Realistic expectations should be set with current treatment plan goals connecting to long term outcomes.

Notes:

- *Telehealth/ Telemedicine is not an approved method of service delivery for direct ABA services (e.g., 97153, 97154, 0373T). Telehealth/ Telemedicine for parent education (e.g., 97156 and 97157) and direct supervision (e.g., 97155) activities can be covered if allowed as an eligible telehealth/ telemedicine service under the member benefit plan. It is recommended that telehealth/ telemedicine service delivery be combined with face- to- face service delivery of direct supervision activities.*

- *ABA therapy services are subject to prior approval; however, prior approval does not guarantee coverage.*

- *The authorization approval for ABA therapy services is not inclusive of other services being provided (i.e., occupational therapy, speech therapy, physical therapy, educational services (day care, preschool, school, early interventional services), etc.). The approval is specific to applied behavior analysis therapy.*

- *A medical necessity review of the individual's progress in meeting the objectives of the treatment plan shall be reviewed every six months unless it is determined that an earlier review is required, medical necessity review requests for the treatment of an individual receiving ABA therapy may be requested no more than every 3 months.*

- *Documentation of onsite supervision of the applied behavior analysis must be provided.*

Discharge Criteria

- The continuation of ABA for the treatment of ASD to achieve specific behavior goals is considered **not medically necessary** when one or more of the following have been met:

    - Based on documentation the individual shows improvement from baseline in targeted skill deficits and problematic behaviors such that goals are achieved, or maximum benefit has been reached; **or**

    - Caregivers have refused treatment recommendations or are unable to participate in the treatment program and/or do not follow through on treatment recommendations to a degree that compromises the effectiveness of the services prescribed/proposed; **or**

    - Behavioral issues are exacerbated by the treatment; **or**

    - Individual is unlikely to continue to benefit or maintain gains from continued care:

      Based on documentation provided there has been no clinically significant progress/measurable improvement for a period of at least 3 months in the individual's behavior(s) or skill deficits in any of the following measures:

        - Adaptive functions
        - Communication/language skills
        - Social/family interactions
        - Behaviors interfering with functioning/relationships:

            - ☐ Repetitive restrictive behaviors
            - ☐ Disruptive/aggressive self-injurious behaviors

Resumption of Treatment

Resumption of ABA for the treatment of ASD may be considered **medically necessary** when **ALL** the following criteria are met:

- A minimum of 12 months has elapsed since the end of previous ABA treatment; **and**
- Medical necessity criteria above are met for initiate care.

Not Medically Necessary

The treatment of ASD using ABA is considered **not medically necessary** in all other circumstances including but not limited to the following:

- To achieve non-specific behavioral goals or general improvement in behavior.

- As a means of supportive care rather than time-limited behavioral intervention.

- To achieve high-level social discourse (communication involving a social element)

- Social skills training.

- Individual can safely and effectively be treated at a less intensive level of service that will likely produce equivalent therapeutic results.

POLICY GUIDELINES

Documentation Requirements

Documentation supporting the medical necessity criteria described in the Policy above must be included in the prior approval.

Additionally clinical notes indicating the following:

1. The intensity or extensiveness of treatment requested corresponds to the developmental and adaptive behavioral needs of the individual.
2. The hours of services requested reflect the number of behavioral targets, services, and key functional skills to be addressed, with a clinical summary justifying the hours requested for each behavioral target.
3. The intensity of ABA treatment should be informed by the need for least restrictive forms and levels of ABA treatment. ABA not only meets medical necessity criteria but while doing so provides the least restrictive and least intrusive treatment environment.

Definitions

- **Baseline data:** objective and quantitative measures of the percentage, frequency or intensity and duration of skill/behavior prior to intervention.

- **Caregiver Training:** Caregiver participation is a crucial part of ABA treatment and should begin at the onset of services. Provider's clinical recommendations for amount and type of caregiver training sessions should be mutually agreed upon by caregivers and provider. Caregiver participation is expected for at least 80% of agreed upon caregiver training sessions scheduled between provider and caregiver.

    - Caregiver training is defined as the education and development of caregiver-mediated ABA strategies, protocols, or techniques directed at facilitating, improving, or generalizing social interaction, skill acquisition and behavior management, to include observational measures for assurance of treatment integrity. Caregiver training is necessary to address member's appropriate generalization of skills, including activities of daily living, and to potentially decrease familial stressors by increasing member's independence.
    - Caregiver training goals submitted for each authorization period must be specific to the member's identified needs and should include goal mastery criteria, data collection and behavior management procedures if applicable, and procedures to address ABA principles such as reinforcement, prompting, fading, and shaping. Each caregiver goal should include date of introduction, current performance level, and a specific plan for generalization. Goals should include measurable criteria for the acquisition of specific caregiving skills.
    - It is recommended that one hour of caregiver training occurs for the first 10 hours of direct line therapy, with an additional 0.5 hours for every additional 10 hours of scheduled direct line therapy unless contraindicated or caregiver declines. Caregiver training hours should increase

to a higher ratio of total direct line therapy hours if member goals address activities of daily living, as provider plans for transition to lower level of care within the next 6 months or, as member comes within one year of termination of benefits based on benefit coverage.
    - If parents decline or are unable to participate in caregiver training, a generalization plan should be created to address member's skill generalization across environments and people. Should 80% not be attainable over the course of an authorization period, a plan to increase parent participation should also be included in the request for ongoing care.
    - Caregiver training does not include training of teachers, other school staff, other health professionals or other counselors or trainers in ABA techniques. However, caregiver training can include teaching caregivers how to train other professionals or people involved in the member's life.

- **Clinical Significance**: Clinical significance is the measurement of practical importance of a treatment effect-whether it creates a meaningful difference and has an impact that is noticeable in daily life.

- **Core Deficits of Autism**: persistent deficits in social communication and social interaction across multiple contexts AND, restricted, repetitive patterns of behavior, interests, and activities

- **Duration**: Treatment duration is effectively managed by evaluating the client's response to treatment. This evaluation can be conducted prior to the conclusion of the authorization period. Some individuals will continue to demonstrate medical necessity and require continued treatment across multiple authorization periods.

- **Functional Analysis:** Empirically supported process of making systematic changes to the environment to evaluate the effects of the four testing conditions of play (control), contingent attention, contingent escape and the alone condition, on the target behavior, which allows the practitioner to determine the antecedents and consequences maintaining the behavior.

- **Functional Behavior Assessment:** comprises descriptive assessment procedures designed to identify environmental events that occur just before and just after occurrences of potential target behaviors and that may influence those behaviors. That information may be gathered by interviewing the member's caregivers; having care givers complete checklists, rating scales or questionnaires; and/or observing and recording occurrences of target behaviors and environmental events in everyday situations (AMA CPT, 2019).

- **Generalization:** skills acquired in one setting are applied to many contexts, stimuli, materials, people, and/or settings to be practical, useful, and functional for the individual. Generalized behavior change involves systematic planning and needs to be a central part of every intervention and every caregiver training strategy.

- **Intensity:** Will vary with each individual and should reflect goals of treatment, specific needs of the individual, and responses to treatment. Intensity is typically measured in terms of hours per week of direct treatment. Intensity often determines whether the treatment falls into the category of either Focused or Comprehensive.

- **Interpersonal Care:** interventions that do not diagnose or treat a disease, and that provide either improved communication between individuals, or a social interaction replacement.

- **Long-Term Objective:** An objective and measurable goal that details the overall terminal mastery criteria of a skill being taught. Specifically, this terminal mastery criteria will indicate that a member can demonstrate the desired skill across people, places, and time, which suggests the skill no longer requires further teaching.

- **Mastery criteria:** objectively and quantitatively stated percentage, frequency or intensity and duration in which a member must display skill/behavior to be considered an acquired skill/behavior.

- **Neurological Evaluation**: Minimal elements include:
    - Evaluation of cranial nerves I-XII
    - Evaluation of all four extremities, to include motor, sensory and reflex testing
    - Evaluation of coordination
    - Evaluation of facial and/or somatic dysmorphism
    - Evaluation of seizures or seizure activity

- **Non standardized instruments:** include, but not limited to, curriculum referenced assessment, stimulus preference- assessment procedures, and other procedures for assessing behaviors and associated environmental events that are specific to the Individual patient and behaviors.

- **Present Level of Performance:** objective and quantitative measures of the percentage, frequency or intensity and duration of skill/behavior prior to intervention.

- **Respite Care**: care that provides respite for the individual's family or persons caring for the individual.

- **Short-Term Objective:** An intermediate, objective and measurable goal that details the incremental increases a member must demonstrate in moving toward the identified Long-Term Objective.

- **Standardized Assessments:** include, but not limited to, behavior checklists, rating scales, and adaptive skill assessment instruments that comprise a fixed set of items and are administered and scored in a uniform way with all patients. (AMA CPT, 2019) The listed assessments are not meant to be exhaustive but serve as a general guideline to quantify baseline intelligence and adaptive behaviors and when repeated, measure treatment outcomes. The autism specific assessments assist not only in the confirmation of diagnosis but more importantly, in the severity and intensity of the baseline core ASD behaviors.

Coding

See the Codes table for details.

BACKGROUND

Autism Spectrum Disorder

ASD is a biologically based neurodevelopmental disorder characterized by persistent deficits in social communication and social interaction and restricted, repetitive patterns of behavior, interests, and activities. ASD can range from mild social impairment to severely impaired functioning; as many as half of individuals with autism are non-verbal and have symptoms that may include debilitating intellectual disabilities, inability to change routines, and severe sensory reactions. The American Psychiatric Association's Diagnostic and Statistical Manual, Fifth Edition (DSM-5) provides standardized criteria to help diagnose ASD (see below). Autism can co-occur with other mental health diagnoses, including, but not limited to, depression, anxiety disorders (e.g., social anxiety, obsessive-compulsive disorder), attention deficit hyperactivity disorder, Tourette syndrome/tic disorder, personality disorder, and/or psychosis.

Diagnosis of ASD in the United States (U.S.) generally occurs in 2 steps: developmental screening followed by comprehensive diagnostic evaluation if screened positive. The American Academy of Pediatrics (AAP) recommends general developmental screening at 9, 18, and 30 months of age and ASD-specific screening at 18 and 24 months of age. Diagnosis and treatment in the first few years of life can have a strong impact on functioning since it allows for treatment during a key window of developmental plasticity. However, early diagnosis in the US remains an unmet need even though studies have demonstrated a temporal trend of decreasing mean age at diagnosis over time.[1]

Diagnostic criteria for autism spectrum disorder (ASD) based on The Diagnostic and Statistical Manual of Mental Disorders (DSM-5):

A. "Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive):
    1. Deficits in social-emotional reciprocity, ranging, for example from abnormal social approach and failure of normal back-and-forth conversation; to reduce sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
    2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and non-verbal communication.
    3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers"

"Specify Current Severity: Severity is based on social communication impairments and restricted, repetitive patterns of behavior." (See below)

B. 'Restricted, repetitive patterns of behavior, interests, or activities, as manifested by a least two of the following, currently or by history (examples are illustrative, not exhaustive):
    1. Stereotyped or repetitive motor movements, use of objects or speech (e.g., simple motor stereotypes, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
    2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with

transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).

3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
4. Hyper or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement)."

"Specify current severity: Severity is based on social communication impairments and restricted, repetitive patterns of behavior." (See below)

C. "Symptoms must be present in the early development period (but may not become fully manifested until social demands exceed limited capacities or may be masked by learned strategies in later life)."
D. "Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning."
E. "These disturbances are not better explained by intellectual disability (intellectual development disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level."

Severity Levels for Autism Spectrum Disorder

Severity Level	Social Communication	Restricted, Repetitive Behaviors
Level 3 – Requiring very substantial support	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty in changing focus or action.
Level 2 – Requiring substantial support	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and who has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Level 1 – Requiring support	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful responses to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to-and-fro conversation with others fails, and	Inflexibility of behavior causes significant interference with functioning in or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

Severity Levels for Autism Spectrum Disorder		
Severity Level	**Social Communication**	**Restricted, Repetitive Behaviors**
	whose attempts to make friends are odd and typically unsuccessful.	

Treatments for ASD can be generally broken down into the following categories, although some treatments involve more than one approach: behavioral, developmental, educational, social-relational, pharmacological, psychological, and complementary/alternative. The gold standard therapy for the core symptoms of ASD is behavioral therapy. Additionally, many individuals with ASD have abnormalities in multiple organs (e.g., brain, immune system, gastrointestinal system) and may be adversely impacted by environmental factors including psychosocial stress, dietary limitations, and allergen exposure. Although it is unclear whether these issues are related to the etiology of ASD, there is evidence that these factors can alter ASD symptoms, which makes them potential therapeutic targets.

Applied Behavior Analysis

ABA focuses on the analysis, design, implementation, and evaluation of social and other environmental modifications to produce meaningful changes in human behavior and includes the use of direct observation, measurement, and functional analysis of the relationship between environment and behavior. ABA uses changes in environmental events, including antecedent stimuli and consequences, to produce practical and significant changes in behavior. These relevant environmental events are usually identified through a variety of specialized assessment methods. ABA is based on the fact that an individual's behavior is determined by past and current environmental events in conjunction with organic variables such as genetic endowment and physiological variables. When applied to ASD, ABA focuses on treating the problems of the disorder by altering the individual's social and learning environments.

ABA treatment models can generally be classified as focused or comprehensive. Focused ABA refers to treatment provided directly to the individual for a limited number of behavioral targets and may involve increasing socially appropriate behavior or reducing problem behavior as the primary target. Focused ABA is appropriate for individuals who need treatment only for a limited number of key functional skills or have such acute problem behavior that its treatment should be the priority. Comprehensive ABA refers to the treatment of the multiple affected developmental domains (e.g., cognitive, communicative, social, emotional, and adaptive functioning) and maladaptive behaviors. Initially, treatment is typically provided in structured therapy sessions, which are integrated with more naturalistic methods as appropriate. As the individual progresses and meets established criteria for participation in different settings, treatment in those settings and in the larger community should be provided.

Behavior Analyst Certification Board, Inc

The Behavior Analyst Certification Board, Inc (BABC) is a nonprofit 501(c)(3) corporation that was established in 1998 to meet professional credentialing needs identified by behavior analysts, governments, and consumers of behavior analysis services. The BACB adheres to international standards for boards and grant professional credentials. The BACB certification procedures and content undergo regular psychometric review and validation, pursuant to a job analysis survey of the profession and standards established by content experts in the field.

The Behavior Analyst Certification Board's credentialing programs are accredited by the National Commission for Certifying Agencies in Washington, DC. NCCA is the accreditation body of the Institute for Credentialing Excellence.

BACB's Mission: Protect consumers of behavior analysis services by systematically establishing, promoting, and disseminating professional standards.

Behavior Analyst Certification Board, Inc Credentials

Board Certified Behavior Analyst (BCAB, BCBA-D):
The BCBA and BCBA-D are independent practitioners who also may work as an employee or independent contractors for an organization.

- **BCBA-D** - are board certified behavior analysts who have earned a Doctorate Degree and the BCBA-D certification with all the training and experience requirements set forth by the Behavioral Analyst Certification Board.
- **BCBA** – are board certified behavior analysts who have earned a master's degree and the BCBA certification with all the training and experience requirements set forth by the Behavior Analyst Certification Board.

The BCBA or BCBA-D is primarily responsible for the following:

- Conducts descriptive and systematic behavioral assessments, including functional analyses, and provides behavior analytic interpretations of the results.
- Designs and supervises behavior analytic interventions.
- Able to effectively develop and implement appropriate assessment and intervention methods for use in unfamiliar situations and for the range of cases.
- Seeks the consultation of more experienced practitioners when necessary.
- Teaches others to carry out ethical and effective behavior analytic interventions based on published research and designs and delivers instruction in behavior analysis.
- Supervise the work of Board-Certified Assistant Behavior Analysts (BCaBA) and others who implement behavior analytic interventions (Registered Behavior Technician (RBT)).

Board Certified Assistant Behavior Analyst (BCaAB)

BCaBA is an undergraduate-level certification in behavior analysis. Professionals who are certified at the BCaBA level may not practice independently but must be supervised by someone at the BCBA/BCBA-D level. In addition, BCaBAs can supervise the work of Registered Behavior Technicians, and others who implement behavior-analytic interventions.

BCaBA - are board certified assistant behavior analysts who have earned a bachelor's degree and the BCaBA certification with all the training and experience requirements set forth by the Behavior Analyst Certification Board.

Registered Behavior Technician (RBT):

The Registered Behavior Technician (RBT) is a paraprofessional who practices under the close, ongoing supervision of a BCBA or BCaBA. The RBT assists in delivering behavior analytic services.

Coordination with Other Professionals

ABA therapy is typically provided by a treatment team rather than individual provider.

Consultation with other professionals helps ensure client progress through efforts to coordinate care and ensure consistency including during transition periods and discharge.

Treatment goals are most likely achieved when there is a shared understanding and coordination among all healthcare providers and professionals. Examples include collaboration between the prescribing physician and the Behavior Analyst to determine the effects of medication on treatment targets. Another example involves a consistent approach across professionals from different disciplines in how behaviors are managed across environments and setting. Professional collaboration that leads to consistency will produce the best outcomes for the client and their families.

Parent and Caregiver Training

Training of parents and other caregivers usually involves a systematic, individualized curriculum on the basics of ABA. It is common for treatment plans to include several objective and measurable goals for parents and other caregivers. Training emphasizes skill development and support so that caregivers become competent in implementing treatment protocols across critical environments. Training usually involves an individualized behavioral assessment, case formulation, and then customized didactic presentations, modeling and demonstrations of the skill, and practice with vivo support for each specific skill. Ongoing activities involve supervision and coaching during implementation, problem-solving as issues arise, and support for implementation of strategies in new environments to ensure optimal gains and promote generalization and maintenance of therapeutic changes.

Discharge, Transition Planning, and Continuity of Care

The desired outcomes for discharge should be specified at the initiation of services and refined throughout the treatment process. Transition and discharge planning from a treatment program should include a written plan that specifies details of monitoring and follow-up as is appropriate for the individual and the family. Parents, community caregivers, and other involved professionals should be consulted as the planning process accelerates with 3-6 months prior to the first change in service.

A description of roles and responsibilities of all providers and effective dates for behavioral targets that must be achieved prior to the next phase should be specified and coordinated with all providers, the individual, and family members.

Discharge and transition planning from all treatment programs should generally involve a gradual step down in services. Discharge from a comprehensive ABA treatment program often requires 6 months or longer, for example, an individual in a comprehensive treatment program might step down to a focused treatment to address a few remaining goals prior to transition out of treatment.

Regulatory Status

ABA is not subject to regulation by the U.S. Food and Drug Administration.

RATIONALE

This evidence review was created in December 2016 and has been updated regularly with searches of the PubMed database. The most recent literature update was performed through December 2025.

Evidence reviews assess the clinical evidence to determine whether the use of a technology improves the net health outcome. Broadly defined, health outcomes are length of life, quality of life, and ability to function including benefits and harms. Every clinical condition has specific outcomes that are important to patients and to managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of a technology, 2 domains are examined: the relevance and the quality and credibility. To be relevant, studies must represent 1 or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. Randomized controlled trials are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

Autism Spectrum Disorder in Children

Clinical Context and Therapy Purpose

The purpose of applied behavior analysis (ABA) in children who have autism spectrum disorder (ASD) is to provide a treatment option that is an alternative to or improvement on standard clinical care.

The following PICO was used to select literature to inform this review.

Populations

The relevant population of interest is children with ASD.

Interventions

The therapy being considered is ABA. Treatment may vary in terms of intensity and duration, the complexity and range of treatment goals, and the extent of direct treatment provided. Many variables,

including the number, complexity, and intensity of behavioral targets and the individual's own response to treatment assist in determining which model is most appropriate.

Comparators

The following treatments are currently being used for the management of ASD: standard clinical care including behavioral, developmental, educational, social-relational, pharmacological, psychological, and complementary/alternative approaches.

Outcomes

The general outcomes of interest are symptoms, functional outcomes, and quality of life.

Follow-up over a period of months to years is of interest to monitor outcomes.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Consistent with a 'best available evidence approach,' within each category of study design, studies with larger sample sizes and longer durations were sought;
- Studies with duplicative or overlapping populations were excluded.

Review of Evidence

Meta-Analysis

In 2021, Rogers et. al. completed an international collaborative individual participant data meta-analysis on the effectiveness of early intensive applied behavior analysis (ABA) based interventions for pre-school autistic children compared with treatment as usual/eclectic interventions. Comparators were classified as “eclectic” when children were reported to have received a mix of specified teaching approaches, such as Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH); Picture Exchange Communication System (PECS); other behavioral or developmental programs: speech and language therapy, music therapy or occupational therapy. Comparators were classified as TAU when children in the study were not reported as receiving a particular treatment plan other than what they would have normally received or where the details of the comparator treatment were not provided. Data from 491 participants (originally collected in 10 studies were included). Most measured outcomes were 1 or 2 years after recruitment and data outcomes beyond 2 years were very limited. All ten studies included were non-randomized and were conducted over a period of more than twenty years. Children receiving early intensive applied behavior analysis–based interventions improved more on the Vineland adaptive behavior scale (MD = 7.00; 95% confidence interval = 1.95–12.06) and cognitive ability (intelligence quotient) (MD = 14.13; 95% confidence interval = 9.16–19.10) relative to comparators at 2 years, though effects varied considerably across studies. All studies were at risk of bias across several domains, often due to the lack of randomization or blinding of outcome assessors. The authors concluded “these IPD-

MAs have shown that early intensive ABA-based intervention may lead to larger improvements in child cognitive ability and adaptive behavior after two years for some children compared to TAU/eclectic interventions, however, due to identified risk of bias limiting the conclusions that could be drawn some studies showed no relative benefit of early intensive ABA-based interventions compared with eclectic/TAU. Furthermore, in common with the evaluation of most autism intervention evaluation studies there is a lack of reliable long-term comparative follow-up data. Future research should investigate interventions most effective for children and families prioritizing outcome measures that are meaningful for the autism community and longer-term follow-up. Further systematic reviews of the existing evidence are unlikely to add to the findings presented here."

Table 1. Studies Included in the Meta-Analysis

Study
Cohen et.al. (2006)
Eikeseth et.al. (2002)
Eikeseth et. al. (2012)
Eldevik et. al. (2012)
Magiati et. al. (2007)
Reed et. al. (2007)
Remington et. al. (2007)
Vivanti et. al. (2014)
Zachor et. al. (2007)
Zachor & Ben-Itzchak (2010)

Eckes et al (2023) conducted a meta-analysis of ABA-based interventions compared with treatment as usual or minimal or no treatment. Reviewers searched 4 databases through March 2020 and identified 11 studies with 632 participants. This included a majority of the studies included in the previous meta-analysis by Rodgers et al (2021) as week as 2 newer studies (Shawler 2016, Molnar 2017). Results were consistent with Rodgers et al (2021) in showing improvements in intellectual functioning and adaptive behavior. However, authors noted that as the included studies were of low methodological quality, the results of their findings may be affected by the high risk of bias of the evidence overall.

Randomized Controlled Trials

As noted by the 2020 American Academy of Pediatrics (AAP) Identification, Evaluation, and Management of Children With Autism Spectrum Disorder publication, based on Smith and Iadarola (2015), "Early intensive behavioral intervention is supported by a few RCTs and substantial single-subject literature, in children younger than 12 years receiving more hours per week of ABA were found to be more likely to achieve individualized goals identified in their programs and in retrospective studies more intense ABA therapy was associated with achieving optimal developmental outcomes. Given the heterogeneity of the ASD phenotype the service needed for these individuals should be individualized by using available clinical data."

Section Summary: Autism Spectrum Disorder in Children

For children with ASD who receive ABA therapy the evidence includes an individual participant meta-analysis of nonrandomized studies, randomized controlled trials (RCTs) and case series. In 2021, Rogers et. al. completed an international collaborative individual participant data meta-analysis on the effectiveness of early intensive applied behavior analysis (ABA) based interventions for pre-school autistic children compared with treatment as usual/eclectic interventions. Data from 491 participants from 10 nonrandomized studies were included. Follow-up was limited to 1-2 years in most studies. This meta-

analysis found children who receive early intensive applied behavior analysis–based interventions improved more on the Vineland adaptive behavior scale (MD = 7.00; 95% confidence interval = 1.95–12.06) and cognitive ability (intelligence quotient) (MD = 14.13; 95% confidence interval = 9.16–19.10) relative to comparators at 2 years, though effects varied considerably across studies. To confirm the benefits of this therapy in the treatment of autism spectrum disorder further comparative studies on which interventions are most effective with longer-term follow-up are needed.

Autism Spectrum Disorder in Adults

Clinical Context and Therapy Purpose

The purpose of ABA in adults who have ASD is to provide a treatment option that is an alternative to or improvement on standard clinical care.

The following PICO was used to select literature to inform this review.

Populations

The relevant population of interest is adults with ASD.

Interventions

The therapy being considered is ABA. Treatment may vary in terms of intensity and duration, the complexity and range of treatment goals, and the extent of direct treatment provided. Many variables, including the number, complexity, and intensity of behavioral targets and the individual's own response to treatment assist in determining which model is most appropriate.

Comparators

The following treatments are currently being used for the management of ASD: standard clinical care including behavioral, developmental, educational, social-relational, pharmacological, psychological, and complementary/alternative approaches.

Outcomes

The general outcomes of interest are symptoms, functional outcomes, and quality of life.

Follow-up over a period of months to years is of interest to monitor outcomes.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;

- To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Consistent with a 'best available evidence approach,' within each category of study design, studies with larger sample sizes and longer durations were sought;
- Studies with duplicative or overlapping populations were excluded.

Review of Evidence

Systematic Reviews

Bishop-Fitzpatrick et al (2013) conducted a systematic review that evaluated the evidence base regarding psychosocial interventions for adults with ASD. A total of 13 studies (Table 2) were included. These studies had diverse methodologies and represented various interventional categories. Of the 13 trials, 5 were single case studies, 4 were RCTs, 3 were non-randomized controlled trials, and 1 was an uncontrolled pre-post-trial. The efficacy of ABA techniques was evaluated in the 5 single case studies of 5 individuals, the majority of whom had coexisting developmental disorders. The remaining trials evaluated the efficacy of social cognition training (6 studies) and other types of community-based interventions (2 studies).

With regard to ABA, all single case studies sought to reduce instances of an undesirable behavior (e.g., coprophagia, repeated inappropriate gestures, or verbal perseverations) or increase instances of a desirable behavior (e.g., social interaction or compliance with a medical procedure). The results from all case studies reported positive benefits of ABA interventions; however, the maintenance of the benefit varied among the studies. ABA interventions included positive reinforcement, mild reprimands, reciprocal statements, and stimulus fading depending on the change in behavior sought. Table 2 provides a summary of the case studies. Despite the potential benefits of ABA described in the systematic review, the results are significantly limited by the small number of single case studies (n=5) included heterogeneity in the ABA approaches and potential concomitant therapy, unclearly defined treatment histories, unclearly defined qualifications of staff and therapists, and lack of utilization of outcome assessment instruments with prespecified clinically meaningful improvement thresholds. There is a substantial need for continued development and evaluation of psychosocial treatments, including ABA, for adults with ASD.

The National Institute for Health and Clinical Excellence (NICE) also conducted an evidence review in 2012 on the diagnosis and management of ASD, which was last updated in June 2021. However, ABA is not specifically mentioned. Various psychosocial interventions are recommended for the core features of autism, to improve life skills, for challenging behaviors, and for those with concurrent mental disorders.

Table 2. Studies Included in the Systematic Review

Study	Bishop-Fitzpatrick et al (2013)
Baker et al (2005)	●*
Bolte et al (2002)	●
Faja et al (2012)	●
Gantman et al (2012)	●
Garcia-Villamisar et al (2010)	●
Garcia-Villamisar et al (2007)	●
Golan et al (2006)	●
McDonald et al (2003)	●*
Moore (2009)	●*
Rehfeldt et al (2003)	●*
Shabani et al (2006)	●*
Trepagnier et al (2011)	●
Turner-Brown et al (2008)	●

*Studies that utilized an applied behavior analysis intervention.

Nonrandomized Studies

Table 3. Summary of Case Series Characteristics and Results

Study	Participant	Intervention	Total Study Duration	Outcome
Baker et al (2005)	Adult male in his 40s diagnosed with profound intellectual disability and autism who engaged in coprophagia	As a competing or replacement behavior, highly spiced, flavorful foods were provided with meals and snacks to reduce coprophagia	3 years	No instances of coprophagia were observed starting approximately 6 months after initiation of the intervention until the end of research data collection
McDonald et al (2003)	18-year-old male with autism who received little attention from adults when he engaged in appropriate non-verbal behavior	Use of token reinforcers (i.e., pennies) to increase the instance of verbal initiating with adult staff in a classroom setting; the tokens were accumulated during a session and then traded for a backup reinforcer (e.g., magazine, candy, soda)	NR	A clear improvement in the amount of positive social attention directed toward the case participant was seen during treatment as the participant increased verbal social initiation with the staff

Study	Participant	Intervention	Total Study Duration	Outcome
Moore (2009)	18-year-old male with pervasive developmental disorder-not otherwise specified	Self-management treatment package in which the participant administered reinforcement (i.e., diet soda) as a reward if he was able to achieve an increasing interval without exhibiting stereotypic behaviors	NR	The intervention was found to increase the latency to stereotypic behaviors over time
Rehfeldt et al (2003)	23-year-old male with autism and mild intellectual disability who tended to exhibit perseverative speech	Use of mild reprimands and reciprocal statements when the participant perseverated verbally	NR	The intervention was effective in reducing the number of verbal perseverations and increasing appropriate verbal responses
Shabani et al (2006)	18-year-old male with autism, intellectual disability, and type 2 diabetes who had a needle phobia	Stimulus fading, consisting of gradually increased exposure to a needle combined with differential reinforcement	NR	The intervention was successful in obtaining daily blood samples for measuring glucose levels in this patient

NR: not reported.

Section Summary: Autism Spectrum Disorder in Adults

To demonstrate improvement in health outcomes, controlled studies are needed that report clinically important outcomes such as improvement in functional status. No such trials were identified through a literature search. A single systematic review of psychosocial interventions for adults with ASD included 5 individual case studies of 5 males with coexisting developmental disorders undergoing various ABA interventions. Results from the case studies revealed generally positive behavioral changes following the ABA interventions with varying degrees of benefit maintenance. To confirm these benefits, further comparative research is needed in a larger number of adults with ASD, preferably in a clearly defined population, compared to a clearly defined established comparator, using established outcome measurements with prespecified clinically significant differences.

SUPPLEMENTAL INFORMATION

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the evidence review conclusions.

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in ‘Supplemental Information' if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

American Academy of Pediatrics

In 2020, the American Academy of Pediatrics (AAP) in the identification, evaluation and management of children with autism spectrum disorder states: “Most evidence-based treatment models are based on principles of ABA. Early intensive behavioral intervention is supported by a few RCTs and substantial single-subject literature, in children younger than 12 years receiving more hours per week of ABA were found to be more likely to achieve individualized goals identified in their programs and in retrospective studies more intense ABA therapy was associated with achieving optimal developmental outcomes. Given the heterogeneity of the ASD phenotype the service needed for these individuals should be individualized by using available clinical data.”

Pediatric Recommendations:

- “Early identification and treatment: Pediatric providers should use screening and surveillance to provide accurate and early identification, cost-effective and timely diagnosis, prompt implementation of evidence-based interventions, and elimination of disparities to access to care for children with ASD. Clinicians should respond appropriately to family or clinical concerns and results of screening to avoid delays in diagnosis and treatment.”
- “Collaboration of systems of care: Children with ASD should be provided evidence-based services to address social, academic, and behavioral needs at home and school; access to appropriate pediatric and mental health care; respite services; and leisure activities.”
- “Planning for adolescence and transition to adult systems of care: Communities should build services to promote social skills appropriate for work and postsecondary education, access to appropriate medical and behavioral health services, job skills development, and community leisure opportunities. Pediatricians need to engage with families and youth to plan a transition to adult medical and behavioral health care. The medical home provider should support the family and youth in advocating for appropriate post-secondary work or schooling, residential supports, and activities to maintain a healthy lifestyle.”
- “Informed individuals and families: The pediatrician can educate youth with ASD and their families about the evidence for interventions, refer families for possible participation in clinical research when appropriate, refer families to support organizations, and prepare families to navigate transitions.”
- “Informed pediatric providers: To best serve patients and families affected by ASD, the clinician caring for children and youth with ASD should be familiar with issues related to diagnosis, coexisting medical and behavioral conditions, and the impact of ASD on the family to provide a medical home for these patients. Actively addressing capacity building to care for children and youth with ASD requires initiatives directed at provider education and practice quality improvement and public health, educational, and social programs to support families in their journey from diagnosis to service provision to transition to adult care.”

Ongoing and Unpublished Clinical Trials

Some currently ongoing and unpublished trials that might influence this review can be located at clinicaltrials.gov.

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CODES

To report provider services, use appropriate CPT codes, HCPCS codes, Revenue codes, and/or ICD diagnosis codes.

Codes	Number	Description
CPT		
	97151	Behavior identification assessment, administered by a physician or other qualified health care professional, each 15 minutes of the physician's or other qualified health care professional's time face-to-face with patient and/or guardian(s)/caregiver(s) administering assessments and discussing findings and recommendations, and non-face-to-face analyzing past data, scoring/interpreting the assessment, and preparing the report/treatment plan
	97152	Behavior identification-supporting assessment, administered by one technician under the direction of a physician or other qualified health care professional, face-to-face with the patient, each 15 minutes
	97153	Adaptive behavior treatment by protocol, administered by technician under the direction of a physician or other qualified health care professional, face-to-face with one patient, each 15 minutes
	97154	Group adaptive behavior treatment by protocol, administered by technician under the direction of a physician or other qualified health care professional, face-to-face with two or more patients, each 15 minutes
	97155	Adaptive behavior treatment with protocol modification, administered by physician or other qualified health care professional, which may include simultaneous direction of technician, face-to-face with one patient, each 15 minutes
	97156	Family adaptive behavior treatment guidance, administered by physician or other qualified health care professional (with or without the patient present), face-to-face with guardian(s)/caregiver(s), each 15 minutes
	97157	Multiple-family group adaptive behavior treatment guidance, administered by physician or other qualified health care professional (without the patient present), face-to-face with multiple sets of guardians/caregivers, each 15 minutes
	97158	Group adaptive behavior treatment with protocol modification, administered by physician or other qualified health care professional, face-to-face with multiple patients, each 15 minutes

Codes	Number	Description
	0362T	Behavior identification supporting assessment, each 15 minutes of technicians' time face-to-face with a patient, requiring the following components: administration by the physician or other qualified health care professional who is on site; with the assistance of two or more technicians; for a patient who exhibits destructive behavior; completion in an environment that is customized to the patient's behavior
	0373T	Adaptive behavior treatment with protocol modification, each 15 minutes of technicians' time face-to-face with a patient, requiring the following components: administration by the physician or other qualified health care professional who is on site; with the assistance of two or more technicians; for a patient who exhibits destructive behavior; completion in an environment that is customized to the patient's behavior
HCPCS		
	None	
Type of Service	Treatment Therapy	
Place of Service	Outpatient/Professional	

POLICY HISTORY

Date	Action	Action
December 2025	Annual Review	Policy Revised
December 2024	Annual Review	Policy Revised
December 2023	Annual Review	Policy Revised
December 2022	Annual Review	Policy Renewed
December 2021	Annual Review	Policy Revised
March 2021	Interim Review	Policy Revised
December 2020	Annual Review	Policy Renewed
May 2020	Interim Review	Policy Revised
February 2020	Interim Review	Policy Revised

Date	Action	Action
December 2019	Annual Review	Policy Revised
December 2018	Annual Review	Policy Renewed
December 2017	Annual Review	Policy Revised
March 2017	Interim Review	Policy Revised
January 2017	Interim Review	Policy Revised
December 2016	Interim Review	New Policy Created

New information or technology that would be relevant for Wellmark to consider when this policy is next reviewed may be submitted to:

Wellmark Blue Cross and Blue Shield
Medical Policy Analyst
PO Box 9232
Des Moines, IA 50306-9232

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