Intensive Behavioral Intervention Therapy for Autism

Policy Number: 8.03.500  Last Review: 2/2014

Policy
BCBSKC will not provide coverage for Intensive Behavioral Intervention Therapy for Autism (aka, applied behavior analysis, Lovaas therapy). This is considered investigational.

When Policy Topic is covered
Not Applicable

When Policy Topic is not covered
Intensive behavioral intervention therapy for the treatment of autism is considered investigational.

Description of Procedure or Service
Autism spectrum disorders (ASDs) include autistic disorder (autism), Asperger syndrome, and pervasive developmental disorder (PDD). Manifestations of ASDs can vary widely in severity and symptoms, depending on the developmental level and chronological age of the patient. Autism is often defined by specific impairments that affect socialization, communication, and stereotyped (repetitive) behavior, which collectively are called the core symptoms of autism. Autism is far more common in males than females, with a male-to-female ratio of 4.3:1. In Europe and North America, the prevalence rate of this disorder is 6 per 1000, but in the United States, the estimated prevalence is 1 in 110 children.

There is currently no cure for ASDs, nor is there any one single treatment for the disorder, although ASDs may be managed through a combination of therapies, including behavioral, cognitive, pharmacological, and educational interventions. The goal of treatment for autistic patients is to minimize the severity of autism symptoms, maximize learning, facilitate social integration, and improve quality of life for both autistic individuals and their families or caregivers. One type of therapy is intensive behavioral intervention (IBI), also referred to as Lovaas therapy, early intensive behavioral intervention (EIBI), or applied behavior analysis (ABA). IBI therapy involves use of operant conditioning, a behavioral modification technique in which a reinforcement, either positive or negative, is used to increase or decrease certain behaviors.

Intensive behavioral intervention (IBI) therapy involves highly structured teaching techniques that are administered on a one-to-one basis by a trained therapist, paraprofessional, and/or parent 25 to 40 hours per week for 2 to 3 years. In classic IBI therapy, the first year of treatment focuses on reducing self-stimulatory and aggressive behaviors, teaching imitation responses, promoting appropriate toy play, and extending treatment into the family. In the second year, expressive and abstract language is taught, as well as appropriate social interactions with peers. Treatment in the third year emphasizes development of appropriate emotional expression, preacademic tasks, and observational learning from peers involved in academic tasks. In an IBI therapy session, the child is directed to perform an action. Successful performance of the task is rewarded with a positive reinforcer, while noncompliance or no response receives a neutral reaction from the therapist. Although once a component of the original Lovaas methodology, aversive consequences are no longer used. This instructional method is known as “discrete trial discrimination learning and compliance.’ Food is usually most effective as a positive
reinforcer for autistic children, although food rewards are gradually replaced with “social” rewards, such as praise, tickles, hugs, or smiles. Parental involvement is considered essential to long-term treatment success; parents are taught to continue behavioral modification training when the child is at home, and may sometimes act as the primary therapist (Geller, 1972; Lovaas, 1987; Smith et al., 2000; Butter et al., 2003; Shea, 2004).

**Rationale**

Evidence evaluated for this report was obtained from a search of the peer-reviewed literature published between 1966 and October 2011. The literature search identified a number of articles describing various types of behavioral therapies. However, only prospective studies that assessed programs specifically described as IBI, EIBI, Lovaas therapy, or ABA and included at least 10 patients were selected for review. The available studies included 17 prospective comparative or controlled studies (n=642) of poor to fair quality. The original work by O. Ivar Lovaas and colleagues consisted of a prospective comparative study as well as a long-term follow-up study. Subsequent research on IBI therapy based on Lovaas methodology includes two randomized studies, one quasi-randomized study, and a number of nonrandomized comparative studies. All enrolled children had a diagnosis of autism, autism spectrum disorder, or pervasive development disorder (PDD). Sample sizes were relatively small in all the studies, ranging from 15 to 78 children. Outcome measures used in the various studies included intelligence quotient (IQ) scores, measures of infant and child development, assessment of language skills, measures of adaptive behavior, school placement and performance, psychological evaluation, and clinical assessment. Several studies provided relatively long-term follow-up data, in some cases up to 2 to 5 years following enrollment in the study, but others provided 1 year or less of follow-up.

**Efficacy:**

Original Findings of Lovaas and Colleagues: In the original work by Lovaas, 38 children with autism were nonrandomly assigned to IBI therapy (n=19) or minimal treatment (n=19), and outcomes were compared with data from 21 children with similar characteristics who were treated at another facility. Lovaas reported that almost half of the children receiving intensive therapy (47%, 9 of 19 children) passed normal first grade and had an IQ score that was at least average, in contrast to the children in the minimal treatment group or comparison control group. However, this study had a number of serious methodological flaws and the dramatic gains reported by Lovaas have not been replicated by other investigators to date in subsequent studies, which are summarized below.

IBI Therapy Versus Other Autism-Specific Treatment: A total of eight studies of poor to fair quality evaluated IBI therapy relative to eclectic treatment interventions developed specifically for children with autism. Sample sizes ranged from 22 to 78 participants. The findings show that IBI therapy generally improves visual-spatial skills relative to eclectic treatment for autism. The results were conflicting regarding the efficacy of IBI therapy relative to eclectic treatment to improve intelligence and cognitive abilities, language skills, adaptive behavior, and the proportion of children moved into mainstream classrooms.

IBI Therapy Versus Other Treatment: Four studies of poor to fair quality evaluated the efficacy of IBI therapy relative to other types of treatment. In general, these therapies were not targeted specifically at autism. IBI therapy was compared with special education programming combined with parent training, varying services selected by the family, standard treatment provided by the local educational authority, and portage treatment. Sample sizes were quite small and varied from 28 to 48 participants. In general, the findings show that IBI therapy significantly raises IQ scores and increases the proportion of children in regular classroom settings relative to other therapies not specifically designed for autism. However, the results were conflicting regarding the efficacy of IBI therapy to improve visual-spatial skills, language skills, and adaptive behavior.

IBI Therapy Parameters: High-Intensity Versus Low-Intensity, Professionally Directed Versus Parent-Directed, Home-Based Versus Residential or Outpatient: One small nonrandomized study (n=27) of poor quality compared high-intensity and low-intensity, home-based ABA programs for children with
ASD. Autism severity scores did not change markedly in either group following therapy, and there were no significant differences at the end of treatment. The only statistically significant between-group differences at follow-up were for educational functioning. One notable limitation of this study was that the high-intensity treatment differed by geographical location of the patients, which may have obscured any group differences. Two small studies of poor to fair quality compared the efficacy of an intensive clinic-managed treatment model of IBI therapy relative to an intensive parent-managed model. Both studies reported similar findings for the clinic-managed and parent-managed groups. Children showed significant improvement on key outcomes, including IQ, language skills, and socialization and communication domains of the Vineland Adaptive Behavior Scale (VABS), regardless of whether IBI therapy was delivered in a clinic-directed or parent-directed program. These findings suggest that parents can successfully manage a program of IBI therapy for their children. However, the program requires a substantial time commitment from parents. A small quasi-randomized study compared IBI therapy administered in a residential facility or the patient’s home with less intensive outpatient therapy. After 2 months, the home-based group showed significant improvement in three of seven Autistic Symptom Checklist categories, while the residential group improved in one category, and the outpatient group did not show improvement in any of the categories. However, children in this group did show improvement in functional behavior scores. At 5 years after the start of the study, 2 (40%) children in the residential group, 1 (20%) in the outpatient group, and none in the home-based group were placed in a residential treatment program. Although these results suggest that home-based IBI therapy is equivalent or superior to residential IBI programs, the sample size was too small to support definitive conclusions.

Systematic Reviews with Meta-Analyses: A total of eight systematic reviews with meta-analyses evaluated IBI therapy for children with autism. The conclusions of the systematic reviews were conflicting and appeared to vary depending on the type of studies included in the review. Two meta-analyses concluded that the evidence is weak and/or inadequate regarding the efficacy of IBI therapy for treatment of autism. One meta-analysis concluded that IBI therapy is an effective therapy for a subpopulation of children with autism. Finally, five meta-analyses concluded that IBI therapy results in improvement, and several of these studies suggested that the treatment should be considered a therapy of choice for children with autism.

Safety: No adverse outcomes or side effects have been reported with the use of IBI therapy and there is no evidence that it causes harm or increases the severity of the disorder.

Patient Selection Criteria: The evidence is insufficient to establish definitive patient selection criteria for IBI for autism in children.

Quality of the Evidence: The evidence for IBI therapy is of low quality with individual study quality ranging from poor to fair. Major limitations in design and methodology were present in most of the available studies including lack of randomization, small sample sizes without power analyses, and enrollment of select subpopulations of children. Other important limitations of the available studies included the lack of standardized treatments in control and/or comparator groups, poor reporting of details of control and/or comparator interventions, wide variability in the types of instruments used both across and within studies, and failure to report on treatment fidelity. The evaluation of treatment effects was hampered by these methodological flaws.

Conclusions: There is some evidence that suggests that treatment of young autistic children with intensive behavioral intervention (IBI) therapy, also called Lovaas or applied behavior analysis (ABA) therapy, may promote gains in cognitive function, language skills, and adaptive behavior. However, although almost all studies suggested improvements in children treated with IBI compared with other treatments, most studies had major limitations in design and methodology, including lack of randomization procedures, small sample sizes, and a lack of blinded assessments to determine treatment effects. In addition, although the initial work by Lovaas suggested that some high-functioning autistic children who undergo IBI therapy can achieve normal school performance and behavior, these findings have not been replicated by other investigators.
References:


**Billing Coding/Physician Documentation Information**

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>97532</td>
<td>Development of cognitive skills to improve attention, memory, problem solving, (includes compensatory training), direct (one-on-one) patient contact by the provider, each 15 minutes.</td>
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<tr>
<td>97533</td>
<td>Sensory integrative techniques to enhance sensory processing and promote adaptive responses to environmental demands, direct (one-on-one) patient contact by the provider, each 15 minutes.</td>
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<tr>
<td>97039</td>
<td>Unlisted modality (specify type and time if constant attendance)</td>
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<tr>
<td>96150</td>
<td>Health and behavior assessment (eg, health-focused clinical interview, behavioral observations, psychophysiological monitoring, health-oriented questionnaires), each 15 minutes face-to-face with the patient; initial assessment</td>
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<tr>
<td>96151</td>
<td>Health and behavior assessment (eg, health-focused clinical interview, behavioral observations, psychophysiological monitoring, health-oriented questionnaires), each 15 minutes face-to-face with the patient; re-assessment</td>
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<tr>
<td>96152</td>
<td>Health and behavior intervention, each 15 minutes, face-to-face; individual</td>
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<tr>
<td>96153</td>
<td>Health and behavior intervention, each 15 minutes, face-to-face; group (2 or more patients)</td>
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<td>96154</td>
<td>Health and behavior intervention, each 15 minutes, face-to-face; family (with the patient present)</td>
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<tr>
<td>96155</td>
<td>Health and behavior intervention, each 15 minutes, face-to-face; family (without the patient present)</td>
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<td>97530</td>
<td>Therapeutic activities, direct (one-on-one) patient contact by the provider (use of dynamic activities to improve functional performance), each 15 minutes</td>
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<td>S5108</td>
<td>Home care training to home care client, per 15 minutes</td>
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<td>H0004</td>
<td>Behavioral health counseling and therapy, per 15 minutes</td>
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<td>H2014</td>
<td>Skills training and development, per 15 minutes</td>
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<td>H0031</td>
<td>Mental health assessment, by nonphysician</td>
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<tr>
<td>H0032</td>
<td>Mental health service plan development by nonphysician</td>
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<tr>
<td>H2019</td>
<td>Therapeutic behavioral services, per 15 minutes</td>
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A specific code for Intensive Behavioral Intervention Therapy does not exist. The codes listed above may be used.

**Additional Policy Key Words**

- Applied Behavior Analysis (ABA)
- Intensive Behavioral Intervention (IBI)
- Discrete Trial Training
- Early Intensive Behavioral Intervention (EIBI)
- Intensive Intervention Programs

**Policy Implementation/Update Information**

- 2/1/07 New policy; considered investigational.
- 2/1/08 No policy statement changes.
- 2/1/09 No policy statement changes.
- 2/1/10 No policy statement changes.
- 2/1/11 Policy title and statement revised with updated language; however, the intent of the policy
remains unchanged. Coding updated.

<table>
<thead>
<tr>
<th>Date</th>
<th>Policy Statement Changes</th>
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<tbody>
<tr>
<td>2/1/12</td>
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<td>2/1/13</td>
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<td>2/1/14</td>
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