SENSORY INTEGRATION THERAPY AND AUDITORY INTEGRATION TRAINING

Policy Number: REHAB 030.11 T2

Effective Date: November 1, 2017

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTRUCTIONS FOR USE</td>
<td>1</td>
</tr>
<tr>
<td>APPLICABLE LINES OF BUSINESS/PRODUCTS</td>
<td>1</td>
</tr>
<tr>
<td>BENEFIT CONSIDERATIONS</td>
<td>1</td>
</tr>
<tr>
<td>NON-COVERAGE RATIONALE</td>
<td>2</td>
</tr>
<tr>
<td>APPLICABLE CODES</td>
<td>2</td>
</tr>
<tr>
<td>DESCRIPTION OF SERVICES</td>
<td>2</td>
</tr>
<tr>
<td>CLINICAL EVIDENCE</td>
<td>3</td>
</tr>
<tr>
<td>U.S. FOOD AND DRUG ADMINISTRATION</td>
<td>7</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>8</td>
</tr>
<tr>
<td>POLICY HISTORY/REVISION INFORMATION</td>
<td>9</td>
</tr>
</tbody>
</table>

INSTRUCTIONS FOR USE

This Clinical Policy provides assistance in interpreting Oxford benefit plans. Unless otherwise stated, Oxford policies do not apply to Medicare Advantage members. Oxford reserves the right, in its sole discretion, to modify its policies as necessary. This Clinical Policy is provided for informational purposes. It does not constitute medical advice. The term Oxford includes Oxford Health Plans, LLC and all of its subsidiaries as appropriate for these policies.

When deciding coverage, the member specific benefit plan document must be referenced. The terms of the member specific benefit plan document [e.g., Certificate of Coverage (COC), Schedule of Benefits (SOB), and/or Summary Plan Description (SPD)] may differ greatly from the standard benefit plan upon which this Clinical Policy is based. In the event of a conflict, the member specific benefit plan document supersedes this Clinical Policy. All reviewers must first identify member eligibility, any federal or state regulatory requirements, and the member specific benefit plan coverage prior to use of this Clinical Policy. Other Policies may apply.

UnitedHealthcare may also use tools developed by third parties, such as the MCG™ Care Guidelines, to assist us in administering health benefits. The MCG™ Care Guidelines are intended to be used in connection with the independent professional medical judgment of a qualified healthcare provider and do not constitute the practice of medicine or medical advice.

APPLICABLE LINES OF BUSINESS/PRODUCTS

This policy applies to Oxford Commercial plan membership.

BENEFIT CONSIDERATIONS

Before using this policy, please check the member specific benefit plan document and any federal or state mandates, if applicable.

**Essential Health Benefits for Individual and Small Group**

For plan years beginning on or after January 1, 2014, the Affordable Care Act of 2010 (ACA) requires fully insured non-grandfathered individual and small group plans (inside and outside of Exchanges) to provide coverage for ten categories of Essential Health Benefits ("EHBs"). Large group plans (both self-funded and fully insured), and small group ASO plans, are not subject to the requirement to offer coverage for EHBs. However, if such plans choose to provide coverage for benefits which are deemed EHBs, the ACA requires all dollar limits on those benefits to be removed on all Grandfathered and Non-Grandfathered plans. The determination of which benefits constitute EHBs is made on a state by state basis. As such, when using this policy, it is important to refer to the member specific benefit plan document to determine benefit coverage.
NON-COVERAGE RATIONALE

Sensory integration therapy is unproven and not medically necessary for treating any condition including the following:
- Learning disabilities
- Developmental delay
- Sensory integration disorder
- Autism spectrum disorder
- Cerebrovascular accident
- Speech disturbances
- Lack of coordination
- Abnormality of gait

The available studies of sensory integration therapy are weak and inconclusive and derived primarily from poorly controlled trials with methodological flaws. These trials fail to demonstrate that sensory integration therapy provides long-term improvement in neurological development and behavioral development. There is no reliable data from well-designed clinical studies that indicate that sensory integration therapy improves clinical outcomes in patients with cerebrovascular accidents, speech disturbances, gait abnormalities, or other medical conditions. Further and better designed clinical trials of sensory integration therapy are necessary in order to establish their clinical usefulness.

Auditory integration training (AIT) is unproven and not medically necessary.
There is insufficient reliable data indicating that AIT devices significantly improve behavior, language, listening ability, or learning ability. AIT is based on the unproven theory that some disorders are caused by hearing or listening deficiencies. It is unknown if the sound levels used for AIT are harmful to hearing.

APPLICABLE CODES

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies may apply.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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, each 15 minutes</td>
</tr>
</tbody>
</table>

CPT® is a registered trademark of the American Medical Association

DESCRIPTION OF SERVICES

Sensory Integration Therapy
Sensory integration is an innate neurobiological process and refers to the integration and interpretation of sensory stimulation from the environment by the brain. In contrast, sensory integrative dysfunction is a disorder in which sensory input is not integrated or organized appropriately in the brain and may produce varying degrees of problems in development, information processing, and behavior.

Sensory integration therapy (SIT) seeks to improve perception and integration of sensory information and thereby help children with learning disabilities improve their sensorimotor skills. In theory, this will result in improved behavior and academic performance. Therapy is usually provided by an occupational therapist (OT), and combines primitive forms of sensation with motor activity during an individual therapy session that typically lasts 60 to 90 minutes. The therapist provides vestibular, proprioceptive, and tactile stimulation during activities designed to elicit appropriate adaptive motor responses. Sensory integration techniques include the use of textured mitts, carpets, scooter boards, ramps, swings, bounce pads, suspended equipment, and weighted vests and blankets to encourage a noncognitive, creative, and explorative process. Therapy is usually given in 1 to 3 sessions per week over several months or a few years and it does not involve tutoring, the more traditional approach to treatment of learning disabilities. (Salokorpi, 2002; Uyanik, 2003)

Different types of sensory integration therapy have been used to treat sensory integration disorder, including Snoezelen, a multisensory environment designed to offer individuals with special needs the opportunity to exercise choice through action.
Auditory Integration Training

Auditory integration training (AIT) aims to address the sensory problems which are said to cause discomfort and confusion in people with learning disabilities, including autism spectrum disorders. These hypersensitivities are believed to interfere with an individual’s attention, comprehension, and ability to learn. The training is typically two 30-minute sessions per day, separated by a minimum of three hours, for ten consecutive working days. The individual listens via headphones to a program of specially filtered and modulated music with wide frequency range.

**CLINICAL EVIDENCE**

**Sensory Integration Therapy**

A systematic review was conducted by Weitlauf et al. (2017) to evaluate the effectiveness and safety of interventions targeting sensory challenges in autism spectrum disorder (ASD). Twenty-four studies were identified including 20 randomized controlled trials (RCTs), 1 nonrandomized trial and 3 retrospective cohort studies. The included studies compared interventions incorporating sensory-focused modalities with alternative treatments or no treatment. The authors concluded that sensory-related outcomes improved in children receiving a sensory integration (SI)-based intervention compared with those receiving usual care or other treatment (low strength of evidence). Motor skills outcomes were improved in children receiving SI-based treatment compared with those receiving usual care or other treatment (low strength of evidence). Studies in the review had small sample sizes and typically limited duration of intervention and follow-up after intervention.

A Hayes medical technology report reviewed eleven peer-reviewed, prospective studies (8 randomized controlled trials) examining sensory integration therapy (SIT) compared with control groups. The studies included children with intellectual disabilities (3 studies), cerebral palsy (2 studies), motor coordination difficulties (1 study), Down syndrome (1 study), and sensory integration difficulties/sensory processing disorder (4 studies). SIT treatment duration ranged from 8 weeks to 1 year, with a frequency of 2 to 5 times per week for 50 minutes to 2 hours in duration per visit. The following outcomes were measured: movement/activity, motor function, general cognitive/academic performance, sensory integration, vestibular function, and physiological function. Most of the reviewed studies (9 of 11) found no clear benefit of SIT over time compared with control groups (no treatment or active interventions) across a range of outcomes for non-autistic children. None of the reviewed studies reported safety-related concerns associated with SIT or reported complications. Overall, the quality of the evidence was low due to limitations of individual studies, including small sample size and absence of follow-up data, and differences across studies in patient populations and outcome measures. The report concludes that the existing body of literature provides little evidence that sensory integration therapy (SIT) improves functioning for non-autistic children across time, or compared with no treatment or alternative interventions. Only 2 of 11 studies reported clear, beneficial effects of SIT over time or compared with a control comparison on a subset of outcomes. (Hayes 2017)

A systematic review which examined the research evidence for sensory integration therapy (SIT) and sensory-based intervention (SBI), for children with autism spectrum disorders (ASD) and sensory processing disorders was conducted by Case-Smith et al. (2015). A total of 19 studies were reviewed; 5 examined the effects of sensory integration therapy and 14 examined sensory-based intervention. Two of the five SIT studies were randomized controlled trials (RCTs); one RCT compared SIT to usual care, one compared SIT to a fine motor activity protocol, and one was a case report. Two RCTs found positive effects for SIT on child performance using Goal Attainment Scaling (effect sizes ranging from .72 to 1.62); other studies (Levels III-IV) found positive effects on reducing behaviors linked to sensory problems. Sensory-based interventions are characterized as classroom-based interventions that use single-sensory strategies (weighted vests or therapy balls), to influence a child's state of arousal. The authors concluded that although small RCTs resulted in positive effects for SIT, additional rigorous trials using manuized protocols for SIT are needed to evaluate effects for children with ASDs and sensory processing problems. The studies were small samples, did not use blinded evaluation, examined short-term interventions, and did not examine retention of intervention gains.

Leong et al. (2015) conducted a systematic analysis on the outcomes of 17 single case design studies on sensory integration therapy (SIT) for people with, or at-risk of, a developmental or learning disability, disorder or delay. The authors noted that SIT is a controversial intervention that is widely used for people with disabilities. An assessment of the quality of methodology of the studies found most used weak designs and poor methodology. The authors concluded that based on limited comparative evidence, functional analysis-based interventions for challenging behavior were more effective that SIT. They further stated that the studies did not provide convincing evidence for the efficacy of SIT and advise that the use of SIT be limited to experimental contexts.

In a systematic review, Watling and Hauer (2015) evaluated the effectiveness of Ayres Sensory Integration (ASI) and sensory-based interventions (SBIs) for individuals with autism spectrum disorder (ASD). The authors describe ASI as a play-based method that uses active engagement in sensory activities to draw out the individual's adaptive responses and improve their ability to successfully meet environmental challenges. Twenty-three abstracts met the inclusion criteria, 3 of which were systematic reviews and 5 of which were randomized control trials (RCTs). The
authors concluded that moderate evidence was found to support the use of ASI and the results for sensory-based methods were mixed. The authors recommended that higher level studies with larger samples, using the fidelity measure in studies of ASI, and using systematic methods in examination of SBIs should be performed.

Pfeiffer et al. (2011) evaluated the effectiveness of sensory integration (SI) interventions in children with autism spectrum disorders (ASD). Thirty-seven children (ages 6-12) with ASD were randomly assigned to a fine motor or SI treatment group. Significant improvements were observed, including goal attainment (sensory processing and regulation, functional motor skills, and social-emotional skills), although the effect size was small when rated by parents (0.125) and moderate when rated by teachers (0.360). Autistic mannerisms, measured by a subscale of the Social Responsiveness Scale (SRS), also significantly improved compared with controls, with a small effect size (0.131). No other significant differences were reported in other behavioral measures, such as the Sensory Processing Measure (SPM) or the Vineland Adaptive Behavior Scales, 2nd Edition (VABS-2). No follow-up assessments beyond the study endpoint were conducted. The significance of this study is limited by small sample size and short follow-up period.

A randomized controlled trial conducted by Fazlioglu et al. (2008) examined the effects of a sensory integration (SI) protocol on low-functioning children (ages 7 to 11) with autism. Study participants were randomized to a treatment group (n=15) and a control group (n=15). The control group patients did not participate in SI program, but attended regularly scheduled special education classes. The intervention program used in this study was based on “The Sensory Diet” and included a prescribed schedule of somatosensory stimulation activities targeting 13 behaviors across sensory modalities and motor skills development and conducted in a specially arranged sensory room. The results from the study suggested that sensory integration programs have positive effects on behaviors of children with autism. Study limitations include lack of power analysis to determine if study had enough power to accurately detect differences between treatment and controls and lack of a follow up period.

In a pilot randomized controlled trial by Miller et al. (2007) the effectiveness of occupational therapy using a sensory integration approach was conducted with children who had sensory modulation disorders. Twenty-four children were randomly assigned to one of three treatment groups: occupational therapy using a sensory integration, activity protocol, and no treatment. Pretest and post-test measures of behavior, sensory and adaptive functioning, and physiology were evaluated. Comparisons among the 3 groups showed that the occupational therapy using a sensory integration group made significant gains on goal attainment scaling and on the Attention subtest and the Cognitive/Social composite of the Leiter International Performance Scale-Revised. The occupational therapy using a sensory integration group showed improvement trends in the hypothesized direction on the Short Sensory Profile, Child Behavior Checklist, and electrodermal reactivity. These findings suggest that occupational therapy using a sensory integration may be effective in ameliorating difficulties of children with sensory modulation disorders; however, larger randomized controlled studies are needed to determine whether occupational therapy using sensory integration is an effective intervention.

Twenty-seven studies were systematically reviewed to identify, evaluate, and synthesize the research literature on the effectiveness of sensory integration (SI) intervention on the ability of children with difficulty processing and integrating sensory information to engage in desired occupations and to apply these findings to occupational therapy practice. Results suggest the SI approach may result in positive outcomes in sensorimotor skills and motor planning; socialization, attention, and behavioral regulation; reading-related skills; participation in active play; and achievement of individualized goals. Gross motor skills, self-esteem, and reading gains may be sustained from 3 months to 2 years. Findings may be limited by Type II error because of small sample sizes, variable intervention dosage, lack of fidelity to intervention, and selection of outcomes that may not be meaningful to clients and families or may not change with amount of treatment provided. According to the authors, replication of findings with methodologically and theoretically sound studies is needed to support current findings. (May-Benson 2010)

Chan et al. (2010) systematically reviewed studies that investigated the effects of multisensory environment in relation to outcomes. One hundred and thirty-two studies were identified from database search of which 17 met the inclusion criteria for review. The evidence supports that participants' had displayed more positive behavior after multisensory therapy sessions. There is no strong evidence supporting that multisensory therapy could help in reducing challenging behavior or stereotypic self-stimulating behavior. According to the authors, this systematic review demonstrates a beneficial effect of multisensory therapy in promoting participants' positive emotions. While the authors acknowledge the difficulty in carrying out randomized controlled trial in people with developmental disabilities and challenging behavior, the lack of trial-derived evidence makes it difficult to arrive at a conclusion of the effectiveness of the multisensory therapy.

Lotan et al. (2009) evaluated the therapeutic influence of the Snoezelen approach which is a multisensory intervention approach. Twenty-eight relevant articles relating to individual (one-to-one) Snoezelen intervention with individuals with intellectual and developmental disabilities (IDD) were reviewed. A meta-analysis regarding the significance of the reduction of maladaptive behavior and the enhancement of adaptive behavior was implemented. The authors
concluded that weaknesses in the examined research methodologies, the heterogeneity between research designs, the small number of available research projects, and the small number of participants in each research project, prevent a confirmation of this method as a valid therapeutic intervention at this time.

Smith et al. (2005) conducted a study to compare the effects of occupational therapy, using a sensory integration approach along with a control intervention of tabletop activities, on the frequency of self-stimulating behaviors in 7 children, ranging in age from 8-19, with pervasive developmental delay and mental retardation. During the 4 week study period, daily 15-min videotape segments were recorded before, immediately after, and 1 hour after either sensory integration or control interventions were performed. Results indicated no change in self-stimulating behaviors occurred immediately following sensory integration intervention or tabletop activity intervention; however, the frequency of self-stimulating behaviors significantly declined one hour after therapy. Limitations with the study included the small sample size and short-term follow-up. Continued research is needed to examine the long-term effects of more extensive intervention.

Wuang et al. (2009) compared the effect of sensory integrative (SI) therapy, neurodevelopmental treatment (NDT), and perceptual-motor (PM) approach on children with mild mental retardation. A total of 120 Children were randomly assigned to intervention with SI, NDT, or PM; another 40 children served as control participants. All children were assessed with measures of sensorimotor function. After intervention, the treatment groups significantly outperformed the control group on almost all measures. The SI group demonstrated a greater pretest-posttest change on fine motor, upper-limb coordination, and SI functioning. The PM group showed significant gains in gross motor skills, whereas the NDT group had the smallest change in most measures. Confidence in the conclusions about the efficacy of SI for improvements in sensorimotor function among children with mild mental retardation was reduced by the restricted age range (ages 7 to 8) of the study sample, a nonequivalent control group, differences in the intensity and frequency of home practice sessions, and a lack of long-term follow-up.

Smania et al. (2008) evaluated whether balance exercises performed under various sensory input manipulations can improve postural stability and/or walking ability in patients with stroke in 7 patients. Patient performance was assessed before, immediately after and one week after treatment (consisting of 20 one-hour daily sessions of several balance exercises) by means of the Sensory Organization Balance Test and the Ten Metre Walking Test. Before treatment, all patients showed balance impairment with difficulty integrating somatosensory information from the lower extremities and excessive reliance upon visual input in standing balance control. After treatment, balance and walking speed significantly increased and this improvement was maintained for one week. The study design (case series) did not allow for any generalizable conclusions about efficacy. Statistical methodologies were limited by the small sample size. Conclusions about relative benefit/risk could not be reached due to the lack of a control and/or a comparative group. The follow-up at one week post-treatment did not allow for assessment of intermediate and long-term outcomes.

Collins et al. (2011) evaluated the effectiveness of a weighted vest for children with difficulty attending to tasks. Ten participants were randomly assigned to an intervention or a control group to compare participants’ percentage of time on task with and without a vest. Control group participants wore a non-weighted vest. Participants, classroom teachers, and research assistants who coded the data were blind as to the group to which the participants were assigned. The results of the study indicated that the weighted vests were not effective in increasing time on task. According to the authors, these results should be generalized cautiously owing to the small sample size and participant selection process.

Hodgetts et al. (2010) conducted a small, randomized and blinded study measuring the effects of wearing a weighted vest on stereotyped behaviors and heart rate for six children with autism in the classroom. Weighted vests did not decrease motoric stereotyped behaviors in any participant. Verbal stereotyped behaviors decreased in one participant. Weighted vests did not decrease heart rate. Heart rate increased in one participant. According to the investigators, based on this study, the use of weighted vests to decrease stereotyped behaviors or arousal in children with autism in the classroom was not supported.

Stephenson et al. (2009) reviewed 7 studies examining weighted vests. The investigators concluded that while there is only a limited body of research and a number of methodological weaknesses, on balance, indications are that weighted vests are ineffective.

In recently published practice guidelines for therapies in children with autism spectrum disorders, the Agency for Healthcare Research and Quality (AHRQ) describes sensory integration and sensory-based interventions as one of several interventions in which autistic children may participate. According to the report, data from studies were insufficient to rate the strength of evidence related to sensory and auditory integration training for improving language skills, challenging behaviors, or cognitive ability in low functioning children with autism. (Warren et al., 2011)
Professional Societies

American Academy of Pediatrics (AAP)
The AAP Section on Complementary and Integrative Medicine; Council on Children with Disabilities released a policy statement for sensory integration therapies for children with developmental and behavioral disorders. They state that it is unclear whether children who present with sensory-based problems have an actual "disorder" of the sensory pathways or whether these deficits are associated with other developmental and behavioral disorders. The AAP notes that because there is no universally accepted framework for diagnosis, sensory processing disorder generally should not be diagnosed. According to the report, occupational therapy with the use of sensory-based therapies may be acceptable as one of the components of a comprehensive treatment plan. However, parents should be informed that the research regarding the effectiveness of sensory integration therapy is limited and inconclusive. Important roles for pediatricians and other clinicians may include discussing with families about a trial period of sensory integration therapy and teaching families how to evaluate the effectiveness of this therapy. (AAP 2012)

The AAP Committee on Children with Disabilities has stated that the scientific legitimacy of sensory integration therapy has not been established for children with motor disabilities. The AAP also states that successful therapy programs are individually tailored to meet the child's functional needs and should be comprehensive, coordinated, and integrated with educational and medical treatment plans, with consideration of the needs of parents and siblings. This can be facilitated by primary care pediatricians and tertiary care centers working cooperatively to provide care coordination in the context of a medical home. (AAP, 2004) A statement of reaffirmation for this policy was published on September 1, 2007.

The AAP Council on Children with Disabilities published guidelines for the management of children with autism spectrum disorders. Regarding sensory integration therapy, the guidelines state that sensory integration (SI) therapy is used alone or as part of a broader program of occupational therapy for children with autism spectrum disorders (ASDs). Unusual sensory responses are common in children with ASDs, but there is not good evidence that these symptoms differentiate ASDs from other developmental disorders, and the efficacy of SI therapy has not been demonstrated objectively. Available studies are plagued by methodologic limitations, but proponents of SI note that higher-quality SI research is forthcoming. (Myers, et al., 2007)

The American Occupational Therapy Association (AOTA)
The AOTA Commission on Practice recognizes sensory integration therapy as one of several frames of reference that a therapist may use and apply in the process of occupational therapy for students who show deficits in sensory integration that contribute to a significant, documented discrepancy in their skills within an educational program. (Tomchek and Case-Smith, 2009)

The AOTA has issued occupational therapy practice guidelines for children and adolescents with challenges in sensory processing and sensory integration. (Watling et al., 2011) According to the guidelines, there is moderate evidence that occupational therapy practitioners should routinely provide sensory integration intervention to eligible clients for the following indications (at least fair evidence was found that the intervention improves important outcomes and concludes that benefits outweigh harm):

- Sensory integration for gross motor and motor planning skills for children with learning disabilities
- Sensory integration to address maladaptive behaviors in children with problems in sensory processing
- Sensory integration to address self-esteem in children with learning disabilities and sensory integrative dysfunction
- Sensory integration approach to reduce the amplitude of electrodermal responses in children with problems in sensory modulation, indicating a decreased stress response to repetitive and potentially noxious sensory stimuli

The guidelines also indicate that there is insufficient evidence to determine whether or not occupational therapy practitioners should routinely provide sensory integration intervention for academic and psychoeducational performance (e.g., math, reading, written language) or sensory integration intervention to increase nystagmus in children with reading delays and problems in sensory integration.

Association for Comprehensive Neurotherapy (ACN)
The ACN states that sensory integration therapy is beneficial for some types of learning disabilities and is considered a useful component of a multidisciplinary approach to autism. (ACN, 2007)

Auditory Integration Training
Sokhadze et al. (2016) conducted a study using Berard's technique of auditory integration training (AIT) to improve sound integration in children with autism. It was proposed that exposure to twenty 30-min AIT sessions (total 10 h of training) would result in improved behavioral evaluation scores, improve profile of cardiorespiratory activity, and positively affect both early [N1, mismatch negativity (MMN)] and late (P3) components of evoked potentials in auditory oddball task. Eighteen children with autism spectrum disorder (ASD) participated in the study. A group of 16
typically developing children served as a contrast group in the auditory oddball task. The study reflected a linear increase of heart rate variability measures and respiration rate. Comparison of evoked potential characteristics of children with ASD versus typically developing children revealed several group difference findings, more specifically, a delayed latency of N1 to rare and frequent stimuli, larger MMN; higher P3a to frequent stimuli, and at the same time delayed latency of P3b to rare stimuli in the autism group. Parental questionnaires demonstrated improvements in behavioral symptoms such as irritability, hyperactivity, repetitive behaviors and other important behavioral domains. The authors concluded that the results of the study propose that more controlled research is necessary to document behavioral and psychophysiological changes resulting from Berard AIT and to provide explanation of the neural mechanisms of how auditory integration training may affect behavior and psychophysiological responses of children with ASD. The findings of this study need to be validated by larger, well-designed studies.

The Agency for Healthcare Research and Quality (AHRQ) published a comparative effectiveness review of therapies for children with autism spectrum disorders. The review was prepared by the Vanderbilt Evidence-based Practice Center. (Warren, et al., 2011) Among the allied health therapies in the review were auditory integration therapy. The research provided little support for their use. Specifically, two fair-quality studies of auditory integration showed no improvement associated with treatment.

Sinha et al. (2004) conducted a systematic review to evaluate AIT and included 6 randomized controlled trials (RTCs) with 171 autistic individuals. Three RTCs did not demonstrate the benefit of AIT over control conditions. The remaining trials identified improvements at 3 months for the AIT group based on improvements of total mean scores for the Aberrant Behavior Checklist, which is of questionable validity. There were no reported significant adverse effects of AIT. The reviewers concluded that more research is needed to determine the effectiveness of AIT for autism.

Auditory integration therapy and music therapy have been proposed for use in patients with central auditory processing disorder; however, no new studies that provide substantial new evidence were found.

Although auditory integration therapy has been proposed for use in patients with epilepsy, only one limited pilot clinical trial was available for review. Further studies are needed to determine the safety and efficacy of AIT therapy for the treatment of epilepsy.

Professional Societies
The American Academy of Pediatrics (AAP)
AAP considers AIT and facilitated communication (FC) to be a controversial treatment option for autism and other disorders. (AAP, 1998/2010) The AAP further states that in the absence of good, controlled studies and until further information are available; the use of these AIT devices does not appear warranted at this time, except within research protocols.

The American Academy of Audiology (AAA)
A 2010 position statement by the AAA concludes that Auditory Integration Training (by any name) is investigational. The Academy believes that prospective, systematic research of this technique is needed to demonstrate its efficacy.

American Speech-Language-Hearing Association (ASHA)
ASHA prepared an evidenced-based technical report regarding AIT. (ASHA, 2004) They noted that, despite approximately one decade of practice, this method has not met scientific standards for efficacy and safety that would justify its inclusion as a mainstream treatment for a variety of communication, behavioral, emotional and learning disorders.

Educational Audiology Association (EAA)
The EAA issued a position statement regarding AIT. (EAA, 1997) They stated that “Auditory integration therapy has not been proven to be a viable treatment for any disability. Only inconsistent, uncontrolled, anecdotal evidence has been provided to support claims of changes in auditory performance.” In addition, the position statement noted that without controls to protect against excessively loud auditory stimuli, AIT may cause harm to the auditory system.

U.S. FOOD AND DRUG ADMINISTRATION (FDA)
Sensory Integration Therapy
The equipment used for sensory integration therapy is not considered medical and therefore not regulated by the FDA.

Auditory Integration Training
Auditory integration training (AIT) devices do not have FDA approval for treating medical, behavioral, or emotional disorders.
The foregoing Oxford policy has been adapted from an existing UnitedHealthcare national policy that was researched, developed and approved by UnitedHealthcare Medical Technology Assessment Committee. [2017T0314P ]

Association for Comprehensive Neurotherapy (ACN) [Web site]. Sensory Integration Therapy 2007.


POLICY HISTORY/REVISION INFORMATION

<table>
<thead>
<tr>
<th>Date</th>
<th>Action/Description</th>
</tr>
</thead>
</table>
| 11/01/2017 | • Updated supporting information to reflect the most current description of services, clinical evidence, FDA information, and references; no change to non-coverage rationale or list of applicable codes  
• Archived previous policy version REHAB 030.10 T2 |