

Treatment Intervention Advisory Committee Review and Determination

Date: April 24, 2015

To: DHS/DLTC

From: Wisconsin Department of Health Services Autism and other Developmental Disabilities
Treatment Intervention Advisory Committee: Lana Collet-Klingenberg, Ph.D. (chairperson)

RE: Determination of Integrated Listening Systems as a proven and effective treatment for individuals with autism spectrum disorder and/or other developmental disabilities

This is an initial review

This is a re-review. The initial review was Date of initial review

Section One: Overview and Determination

Please find below a statement of our determination as to whether or not the committee views Integrated Listening Systems as a proven and effective treatment for children with autism spectrum disorder and/or other developmental disabilities. In subsequent sections you will find documentation of our review process including a description of the proposed treatment, a synopsis of review findings, the treatment review evidence checklist, and a listing of the literature considered. In reviewing treatments presented to us by DHS/DLTC, we implement a review process that carefully and fully considers all available information regarding a proposed treatment. Our determination is limited to a statement regarding how established a practice is in regard to quality research. We do not make funding decisions.

Description of proposed treatment

Integrated Listening Systems (ILS) is a variation of Auditory Integration Training (AIT). The American Speech-Language-Hearing Association describes AIT as follows: "Dr. Guy Berard, an otolaryngologist in France, developed a method of AIT based on the premise that certain people have hypersensitive hearing at selected frequencies and that this can cause agitation, pain, and interference with learning. Berard has explained that even in the absence of hypersensitive hearing, people can present with audiograms that have "peaks" and "valleys," that is, thresholds for adjacent audiometric frequencies that differ by 5 dB or more and result in atypical perception of sounds. In his book, *Hearing Equals Behavior*, Berard (1993) theorizes that these auditory distortions may result in such behavioral disturbances as autism spectrum disorders, learning disabilities, depression, and aggressiveness. Berard suggests that AIT treats these distortions by exercising the middle ear muscles and auditory nervous system in much the same way that muscles are retrained in physical therapy for an injured elbow (Berard, 1993, pp. 78–80). According to Berard (1995), optimal treatment consists of two half-hour sessions per day separated by a minimum of 3 hours, for 10 consecutive working days. Results are evaluated by reviewing the audiogram obtained at the end of the 20 sessions and behavior changes at other post-treatment intervals.

Based on information from the ILS website (<http://integratedlistening.com/the-science-of-how-ILS-works/>) describing ILS, it is stated as "ILS programs include classical music that has been acoustically modified to provide enhanced or filtered signals in certain frequencies, as specific frequencies are believed to be correlated to certain brain functions. The music is loaded on an iPod paired with special headphones which deliver it through both air and bone conduction (a low frequency vibration that is conducted by bone to the cochlea and vestibular system). Simultaneous to the auditory component, the

user engages in visual, vestibular and motor exercises which maximize the interaction of the systems outlined below." The main difference identified between AIT and ILS is that ILS is conducted for shorter time intervals over an extended period (up to 12 weeks) and includes specific physical exercises in addition to auditory stimulation.

Synopsis of review

In the case of Integrated Listening Systems, please refer to the attached reference listing that details the reviewed research. The committee's conclusions regarding Integrated Listening Systems include:

Research:

1. There are no peer reviewed studies that directly evaluate Integrated Listening Systems.
2. The ILS website lists several articles (e.g., in an online OT magazine) that integrates ILS and reports case examples as well as a study that is under review by Schoen that was not found in the published literature.

Similarities to AIT:

1. The basis for ILS is similar to AIT that exposure to frequency modulation at the inner ear bone level can lead to brain changes.
2. Numerous professional organizations do not support AIT, many have position papers against AIT and all have deemed AIT experimental. These include the American Academy of Pediatrics, the New York State Department of Health, the USFDA, the American Speech-Language-Hearing Association, the Educational Audiology Association, and the American Academy of Audiology.

No scientific, empirical studies to date have evaluated ILS as an intervention for individuals with autism, therefore it is the committee's conclusion that there is not at least one high quality study that demonstrates experimental control and favorable outcomes for treatment.

In sum, it is the decision of the committee that Integrated Listening Systems is classified as a Level 4 treatment with Insufficient Evidence (Experimental Treatment).

Section Two: Rationale for Focus on Research Specific to Comprehensive Treatment Packages (CTP) or Models

In the professional literature, there are two classifications of interventions for individuals with Autism Spectrum Disorder (National Research Council, 2001; Odom et al., 2003; Rogers & Vismara, 2008):

- (a) **Focused intervention techniques** are individual practices or strategies (such as positive reinforcement) designed to produce a specific behavioral or developmental outcome, and
- (b) **Comprehensive treatment models** are “packages” or programs that consist of a set of practices or multiple techniques designed to achieve a broader learning or developmental impact.

To determine whether a treatment package is proven and effective, the Treatment Intervention Advisory Committee (TIAC) will adopt the following perspective as recommended by Odom et al. (2010):

The individual, focused intervention techniques that make up a comprehensive treatment model may be evidence-based. The research supporting the effectiveness of separate, individual components, however, does not constitute an evaluation of the comprehensive treatment model or “package.” The TIAC will consider and review only research that has evaluated the efficacy of implementing the comprehensive treatment as a package. Such packages are most often identifiable in the literature by a consistently used name or label.

National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.

Odom, S. L., Brown, W. H., Frey, T., Karusu, N., Smith-Carter, L., & Strain, P. (2003) Evidence-based practices for young children with autism: Evidence from single-subject research design. *Focus on Autism and Other Developmental Disabilities, 18*, 176-181.

Odom, S. L., Boyd, B. A., Hall, L. J., & Hume, K. (2010). Evaluation of comprehensive treatment models for individuals with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 40*, 425-436.

Rogers, S., & Vismara, L. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37*, 8-38.

Section Three: DLTC-TIAC Treatment Review Evidence Checklist

Name of Treatment: Integrated Listening Systems

Level 1- Well Established or Strong Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, National Professional Development Center) have approved of or rated the treatment package as having a strong evidence base; authorities are in agreement about the level of evidence.
- There exist ample high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
 - Minimum of two group studies or five single subject studies or a combination of the two.
 - Studies were conducted across at least two independent research groups.
 - Studies were published in peer reviewed journals.
- There is a published procedures manual for the treatment, or treatment implementation is clearly defined (i.e., replicable) within the studies.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: At this level, include ages of participants and disabilities identified in body of research

Level 2 – Established or Moderate Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have approved of or rated the treatment package as having at least a minimal evidence base; authorities may not be in agreement about the level of evidence.
- There exist at least two high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
 - Minimum of one group study or two single subject studies or a combination of the two.
 - Studies were conducted by someone other than the creator/provider of the treatment.
 - Studies were published in peer reviewed journals.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: At this level, include ages of participants and disabilities identified in body of research

Level 3 – Emerging Evidence (DHS 107 – Promising as a Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have recognized the treatment package as having an emerging evidence base; authorities may not be in agreement about the level of evidence.
- There exists at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
 - May be one group study or single subject study.
 - Study was conducted by someone other than the creator/provider of the treatment.
 - Study was published in peer reviewed journal.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: At this level, include ages of participants and disabilities identified in body of research

Level 4 – Insufficient Evidence (Experimental Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There is not at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
 - Study was conducted by the creator/provider of the treatment.
 - Study was not published in a peer reviewed journal.
- Participants (i.e., N) are not clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes:

- * *Most studies lacked adequate controls and indicated this in their abbreviated materials made available on the ILS home site.*
- * *Full reports were missing.*
- * *ILS was not compared to other treatments.*
- * *ASD therapies were run in addition to ILS without controls.*

Level 5 – Untested (Experimental Treatment) &/or Potentially Harmful

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There are no published studies supporting the proposed treatment package.
- There exists evidence that the treatment package is potentially harmful.**
 - Authoritative bodies have expressed concern regarding safety/outcomes.
 - Professional bodies (i.e., organizations or certifying bodies) have created statements regarding safety/outcomes.

Notes: At this level, please specify if the treatment is reported to be potentially harmful, providing documentation

Date: April 24, 2015

Committee Members Completing Initial Review of Research Base: Roger Bass, Jennifer Asmus

Committee Decision on Level of Evidence to Suggest the Proposed Treatment is Proven and Effective:
Level 4 – Insufficient Evidence/Experimental Treatment

References Supporting Identification of Evidence Levels:

- Chambless, D.L., Hollon, S.D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology, 66*(1), 7-18.
- Chorpita, B.F. (2003). The frontier of evidence---based practice. In A.E. Kazdin & J.R. Weisz (Eds.). *Evidence-based psychotherapies for children and adolescents* (pp. 42---59). New York: The Guilford Press.
- Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure, 54*(4), 275-282.

Section Four: Literature Review

*A pilot study of ILS in the following institutions: Westview Elementary School, Rocky Mountain Elementary School, Thornton Elementary School, Compass Montessori School. (2008-2009)
<http://integratedlistening.com/research/elementary-school-pilot-study/>

The Spiral Foundation. Autism survey with ILS professionals: In what areas is ILS effective? Located at <http://integratedlistening.com/research>

Harper, J., Weiner, A.L. (2010). Effectively addressing attention and auditory processing in school-age children Advance OT (Occupational therapy) Magazine – January 4, 2010 (<http://occupational-therapy.advanceweb.com/archives/article-archives/researching-combined-interventions.aspx>).

Schoen, S. (under review). A sleep intervention for children with autism: A pilot study.
(No published study could be found).

Schoen, S. (no year cited) The effect of ILS on arousal in children with sensory processing disorder: The Sensory Processing Disorder Foundation. <http://integratedlistening.com/wp-content/ILS-files/2007/07/SPDF-arousal-study-2.pdf>