

## Treatment Intervention Advisory Committee Review and Determination

**Date:** April 29, 2016

**To:** DHS/DLTC

**From:** Wisconsin Department of Health Services, Treatment Intervention Advisory Committee: Lana Collet-Klingenberg, Ph.D. (chairperson) ACK

**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, previously reviewed April 2015.

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### 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) and it shares a number of properties and assumptions:

- Neurological disorder is the cause of behavioral dysfunction.
- In ILS, listening to orderly, controlled music or tones will prompt order within the nervous system. This auditory input is delivered, among other means, via CDs, headphones, and the Dreampad Pillow (a pillow that plays programmed music). In most AIT paradigms, music is inherently therapeutic.
- This prompted order will modify the nervous system such that it becomes an organized mediator for sensory input.
- This increased neurological organization will express itself as improved behavioral organization leading to adaptive repertoires.

Based on information from the website (<http://integratedlistening.com/the-science-of-how-ILS-works>) describing ILS, the following is stated: "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:

- The number of peer reviewed, methodologically sound studies is insufficient to justify ILS's use in therapy.
- A number of testimonials are provided, mostly by parents following uncontrolled use of ILS, and often occurring just after or concurrent with other therapies.

In summary, this review does not support changing the 2015 determination, and the decision of the committee is that ILS retain a Level 4 efficacy rating with insufficient evidence of efficacy.

## 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:

#### 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

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Date: April 29, 2016

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

Previously reviewed:

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>).

Shoen, S. (2014). A sleep intervention for children with autism. MS submitted for publication.

Shoen, S., Miller, L.J., & Sullivan, J. (2015). A pilot study of integrated listening systems for children with sensory processing problems. *Journal of Occupational Therapy and Early Interventions*, 8, 256-276.