

Date: April 18, 2014 (initial review February 8, 2013)

To: DHS/DLTC

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

RE: Early Start Denver Model

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Please find below a statement of our determination as to whether or not the committee views Early Start Denver Model (ESDM) as a proven and effective treatment for children with autism spectrum disorders and other developmental disabilities. Following this page you will find documentation of our review process including a description of the proposed treatment, a synopsis of review findings, a listing of literature considered, and the treatment review evidence checklist. 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.

In the case of Early Start Denver Model, the committee's conclusion is as follows:

In the case of ESDM, there exists some well-designed research with a mix of both group and single subject design experimental studies. However, to date, all of the research has been conducted within research groups of which the practice's creators, Dr. Sally Rogers Dr. Geraldine Dawson, have been a part. The ESDM has only been verified with very young populations (ages 10 – 65 months) having ASD diagnoses. It is notable that this comprehensive treatment package has been well documented with a treatment manual, training conditions, and assessment of fidelity in all related studies. Finally, it is noted that parent training and intervention are an important part of this practice. It is the committee's conclusion that **ESDM has achieved a Level two rating: Established or Moderate Evidence (DHS 107 – Proven & Effective Treatment.)**

Supporting documentation follows:

[Rationale for Focus on Research Specific to Comprehensive Treatment Packages](#)  
[Description of Proposed Treatment](#)

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.

(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.

### Description of Proposed Treatment

The Early Start Denver Model (ESDM) is a comprehensive behavioral early intervention approach for children with autism, ages 12 to 48 months. The program encompasses a developmental curriculum that defines the skills to be taught at any given time and a set of teaching procedures used to deliver this content. It is not tied to a specific delivery setting, but can be delivered by therapy teams and/or parents in group programs or individual therapy sessions in either a clinic setting or the child’s home. Psychologists Sally Rogers, Ph.D., and Geraldine Dawson, Ph.D., developed the Early Start Denver Model as an early-age extension of the Denver

Model, which Rogers and colleagues developed and refined. This early intervention program integrates a relationship-focused developmental model with the well-validated teaching practices of Applied Behavior Analysis (ABA). Its core features include the following:

- Naturalistic applied behavioral analytic strategies
- Sensitive to normal developmental sequence
- Deep parental involvement
- Focus on interpersonal exchange and positive affect
- Shared engagement with joint activities
- Language and communication taught inside a positive, affect-based relationship (retrieved 2-8-13 from: <http://www.autismspeaks.org/what-autism/treatment/early-start-denver-model-esdm>)

### Synopsis of Review

A search using terms such as ASD, Autism, Early Start Denver Model, ESDM, early intervention, and parent interventions, along with a request of Dr. Sally Rogers for additional works resulted in six articles that were subsequently reviewed. Two of the articles were reports on different aspects of the same study. Thus two of the studies were experimental group designs, two were experimental single-subject designs, and one was a non-experimental case study. Outcomes assessed included: IQ, Language/Communication, Adaptive Behavior, Social Behavior, EEG Activity, Diagnoses, Attention, Imitation and Play. In all of the studies, training parents to utilize procedures was a big component, as well as assessing parent fidelity of implementation. In the two group studies, participants were randomly assigned to one of two treatment groups. Outcomes were compared between groups and also to typical peers (via normed assessments, e.g., ADOS). In those two studies all participants showed gains, but those in the ESDM group generally showed greater improvement (though not in all cases). Results were varied, but often showed statistical as well as clinical significance.

### Literature Reviewed

Dawson, G., Jones, E.J.H., Merkle, K., Venema, K., Lowy, R., Faja, S., Kamara, D., Murias, M., Greenson, J., Winter, J., Smith, M., Rogers, S.J., & Webb, S.J. (in press). Early behavioral intervention is associated with normalized brain activity in young children with autism. *Journal of the American Academy of Child & Adolescent Psychiatry*.

Dawson, G., , Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J., Donaldson, A., Varley, J. (2009). Randomized, controlled trial of an intervention for toddlers with autism: The early start Denver model. *Pediatrics* 125(1), p. e16-e23.

Rogers, S.J., Estes, A., Lord, C., Vismara, L., Winter, J., Fitzpatrick, A., Guo, M., & Dawson, G. (2012). Effects of a brief early start Denver model (ESDM)-based parent intervention on toddlers at risk for autism spectrum disorders: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51(10), p. 1052-1065.

- Rogers, S., Hayden, D., Hepburn, S., Charlifue-Smith, R., Hall, T., Hayes, A. (2006). Teaching young nonverbal children with autism useful speech: A pilot study of the Denver Model and PROMPT interventions. *Journal of Autism & Developmental Disorders* 36(8), p. 1007-1024.
- Vismara L., Colombi C., Rogers S. (2009). Can one hour per week of therapy lead to lasting changes in young children with autism? *The National Autistic Society* 13(1), p. 93-115.
- Vismara, L., Rogers, S. (2008). The early start Denver Model: A case study of an innovative practice. *Journal of Early Intervention* 31(1), p. 91-108.

DLTC-TIAC Treatment Review Evidence Checklist  
Name of proposed treatment: Early Start Denver Model

**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, NPDC) 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):

- Participants ranged from 10 – 65 months

- Dependent variables included IQ, Language/Communication, Adaptive Behavior, EEG Activity, Social Behavior, Change in Diagnosis, Attention, Imitation, Play.
- Studies include three group studies, two single subject studies, and one case study. One of the group studies, Rogers, Estes, et al. (2012) had questionable results. This model has a parent implementation component, which is notable, as it increases the likelihood of follow through in the home setting.

### 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 peer reviewed journal
- Participants (i.e., N) are not clearly identified as individuals with autism spectrum disorders or developmental disabilities  
Notes:

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  
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- 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 18, 2014

Committee Members Completing Initial Review of Research Base: Linda Tuchman & Lana Collet-Klingenberg; re-review Lana Collet-Klingenberg & Chris Peterson

Committee Decision on Level of Evidence to Suggest the Proposed Treatment is Proven and Effective: **Level 2 – Established or Moderate Evidence (DHS 107 - Proven & Effective 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.*