

Treatment Intervention Advisory Committee Review and Determination

Date: October 31, 2014

To: DHS/DLTC

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

RE: Determination of Equine Assisted Psychotherapy 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 November 22, 2013

Section One: Overview and Determination

Please find below a statement of our determination as to whether or not the committee views Equine Assisted Psychotherapy 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

According to the Equine Assisted Growth and Learning Association (EAGALA), "Equine Assisted Psychotherapy (EAP)" incorporates horses experientially for emotional growth and learning. It is a collaborative effort between a licensed therapist and a horse professional working with the clients and horses to address treatment goals." Frewin and Gardiner (2005) describe equine-assisted psychotherapy as a "psychotherapeutic program or session that includes the use of a horse as part of the therapeutic team", and explains that "the practice falls broadly into the category of animal-assisted therapies." The American Hippotherapy Association (AHA) does not however, make reference to the term "psychotherapy" in its published works, and defines the equine-assisted therapeutic session from a physio, neuro-muscular context.

Synopsis of review

In the case of Equine Assisted Psychotherapy, please refer to the attached reference listing that details the reviewed research. The committee's conclusions regarding Equine Assisted Psychotherapy follow. As stated in the review dated 11/22/13, The Professional Association of Therapeutic Horsemanship International (PATH Intl.) offers a for-purchase manual for establishing a program of equine-assisted psychotherapy. Three of the studies reviewed here (Hawkins et al., 2014; Jenkins et al., 2103; Lanning et al., 2014) mention the following of PATH guidelines. However, there is no clear distinction or definition of the "therapist" in this package. The AHA explains that speech, physical, and/or occupational therapists are trained to provide hippotherapy-based sessions, in conjunction with a trained

“horse handler” or someone with expertise in handling horses. No citations or resources could be located that defined the training or designation of the “therapist” in the application of equine-assisted psychotherapy, or associated psycho-social outcomes that may differ from sensory or motor, as described with hippotherapy. It is assumed that the “therapist” would have a background in psychology and/or counseling or social work to apply a “psychotherapeutic” intervention, however no clear description of such was found. There is very little in the published literature that clearly distinguishes defining associated terms. While equine-assisted (or -facilitated) psychotherapy is referenced in specific articles as a specialized form of psychotherapy, distinct from other equine-assisted activities, many of the same articles identify terms related to “equine-assisted psychotherapy” to include “equine-assisted therapy, equine-assisted learning, therapeutic riding, and hippotherapy” (Lentini & Knox, 2009; EAGALA, n.d.). For this re-review an additional search of the literature was conducted to ascertain if any further studies have emerged. Three additional research studies, as well as an article reviewing animal-assisted interventions for autism spectrum disorder, were found and reviewed. Hawkins et al. (2014), using a single-case design, found significant improvements in motor function in children with ASD who engaged in 5 weeks of equine-assisted therapy. Jenkins et al. (2013), using a single case and group design, found improvements in children's posture, but did not find significant improvement in behavior or social symptoms of children with ASD who engaged in 9 weeks of therapeutic horse riding. Lastly, Lanning et al. (2014), using a group design, found improvements in physical, social, emotional, and quality of life scores of children with ASD who participated in 12 weeks of equine assisted activities. The O'Haire (2013) article, referenced below identified 14 studies published between 1989 and 201 that empirically evaluated animal-assisted interventions for individuals with autism. Of those 14 articles, six focused on the use of horses as part of an intervention package. The six articles identified the interventions as "therapeutic horseback riding, psycho-educational horseback riding, hippotherapy, and equine-assisted therapy," again demonstrating that there is no common definition of the treatment, treatment elements, or intervention package. It should be noted that all of the articles cited in the O'Haire (2013) review have been previously reviewed by this committee in the reviews related to equine-assisted psychotherapy or hippotherapy.

In sum, there is limited, but emerging empirical research to support the use of Equine-Assisted Psychotherapy as an evidence-based treatment for Autism and/or developmental disabilities at this time. There are 5 published studies that investigate the use of equine-assisted activities with children with Autism (Bass et al., 2009; Kern, et al, 2011). The 5 studies reported encouraging outcomes, however, some findings are mixed, and some methods lack scientific rigor. For example, the Bass et al. (2009) study found improvements in autism symptoms and sensory function scores in a group of children with ASD who participated in 12 weeks of therapeutic horseback riding vs. a control group, but no manual for the treatment is provided. Further research in this area is recommended, using clearly identifiable procedures and rigorous experimental designs. Also, there are currently no published experimental studies to investigate impacts on children with Autism using the specific term, “equine-assisted psychotherapy.” Further, there is no means for assuring consistency or fidelity of implementation, nor is there a clear definition of the training or professional disposition of the “therapist.” A review by the Association for Science in Autism Treatment (2010) found succinctly, that “there have been no scientific studies of animal therapy for individuals with autism spectrum disorders.” This stance is corroborated by the O'Haire (2013) review in which the author states, " Advancing the research base on AAI for ASD will require blind ratings of participant behavior and further physiological assessment in order to reduce the likelihood of expectancy biases and lead to greater confidence in genuine treatment outcomes. . . . Future studies should also replicate the outcome measures used in the current studies."

O'Haire concluded that while there is preliminary proof of concept for animal assisted intervention, the field has a way to go to establish a solid evidence-base.

It is the decision of the committee that Equine Assisted Psychotherapy qualifies as a Level 3 - Emerging Evidence 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: Insert therapy name

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: Ages 4-15, ASD

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:

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: October 31, 2014

Committee Members Completing Initial Review of Research Base: Lana Collet-Klingenberg, Amy Van Hecke

Committee Decision on Level of Evidence to Suggest the Proposed Treatment is Proven and Effective:
Level 3 – Emerging Evidence

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

- American Hippotherapy Association (AHA). (2010). Hippotherapy as a treatment strategy. Retrieved from <http://www.americanhippotherapyassociation.org/hippotherapy/hippotherapy-as-a-treatment-strategy/> on November 15, 2013.
- Bass, M.M., Duchowny, C.A., & Llabre, M.M. (2009). The effect of therapeutic horseback riding on social functioning in children with autism. *Journal of Autism and Developmental Disorders*, 39, 1261-1267.
- Chen, C. C. J., Crews, D., Mundt, S., & Ringenbach, S. D. (2014). Effects of equine interaction on EEG asymmetry in children with autism spectrum disorder: a pilot study. International Journal of Developmental Disabilities. DOI: <http://dx.doi.org/10.1179/2047387714Y.0000000044> (Identified, but did not meet criteria for study inclusion)*
- Equine Assisted Growth and Learning Association (EAGALA). (2010). Retrieved from <http://www.eagala.org/> on November 15, 2013.
- Frewin, K., & Gardiner, B. (2005). New age or old sage? A review of equine assisted psychotherapy. *The Australian Journal of Counseling Psychology*, 6, 13-17.
- Ghorban, H., Sedigheh, R., Marzieh, G., & Yaghoob, G. (2013). Effectiveness of therapeutic horseback riding on social skills of children with autism spectrum disorder in Shiraz, Iran. Journal of Education and Learning, 2 (3), 79-84. doi:10.5539/jel.v2n3p79 (Identified, but did not meet criteria for study inclusion)*
- Hawkins, B. L., Ryan, J. B., Cory, A. L., & Donaldson, M. C. (2014). Effects of equine-assisted therapy on gross motor skills of two children with Autism Spectrum Disorder: A Single-subject research study. *Therapeutic Recreation Journal*, 48(2), 135-149.
- Jenkins, S., & Reed, F. (2013). An experimental analysis of the effects of therapeutic horseback riding on the behavior of children with autism. *Research in Autism Spectrum Disorders*, 7, 721-740.
- O'Haire, M.E. (2013). Animal-assisted intervention for Autism Spectrum Disorder: A systematic literature review. *Journal of Autism and Developmental Disorders*, 43, 1606-1622.
- Karol, J. (2007). Applying a traditional individual therapy model to equine-assisted psychotherapy (EFP): Theory and methods. *Child and Clinical Psychology and Psychiatry*, 12, 77-90.
- Kern, J.K., Fletcher, C.L., Garver, C.R., et al (2011). Prospective trial of equine-facilitated psychotherapy (EFP) in autism. *Alternative Therapies*, 17, 14-20.
- Lanning, B., Baier, M., Ivey-Hatz, J., Krenek, N., & Tubbs, J. (2014). Effects of equine assisted activities on autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 44, 1897-1907.

- Professional Association of Therapeutic Horsemanship International (PATH Intl) (2013). Retrieved from <http://www.pathintl.org/> on November 15, 2013.
- Rothe, E. Q., Vega, J., Torres, R. M., Soler, S. M. C., & Pazos, R. M. M. (2005). From kids and horses: Equine assisted psychotherapy for children. *International Journal of Clinical and Health Psychology*, 5, 373-383.
- Schultz, P., Remick-Barlow, G., & Robbins, L. (2007). Equine-assisted psychotherapy: A mental health promotion/intervention modality for children who have experienced intra-family violence. *Health & Social Care in the Community*, 15, 265-271.
- Trotter, K., Chandler, C., Goodwin-Bond, D., & Casey, J. (2008). A comparative study of the efficacy of group equine assisted counseling with at-risk children and adolescences. *Journal of Creativity in Mental Health*, 3, 254-284.
- Ward, S., Whalon, K., Rusnak, K., Wendell, K., & Paschall, N. (2013). The association between therapeutic horseback riding and the social communication and sensory reactions of children with autism. Journal of Autism and Developmental Disorders, 43, 2190-2198. (Identified, but did not meet criteria for study inclusion)*

Article Reference:	Bass, M. M., Duchowny, C. A., & Llabre, M. M. (2009). The effect of therapeutic horseback riding on social functioning in children with autism. <i>Journal of autism and developmental disorders</i> , 39(9), 1261-1267.
IV Description	Treatment group; Children in riding group received 12 weeks of 1/hr weekly riding sessions and games. Comparison was a waitlist control group.
DV	SRS autism symptoms and Sensory Profile.
# in study	19 in Riding Group and 15 in waitlist comparison
Age ranges	4-10 yrs
Diagnoses	ASD, community Dx
Design	Experimental group design
Study Results	Significantly improved parent report of total and social motivation SRS scores, only in the riding Tx group, at post. Significantly improved parent report of Sensory profile scores: sensory seeking, inattention, sensory sensitivity, and sedentary scale scores, only in the riding Tx group, at post. No changes in any measures in WL control group.
Reviewer Comments	This is a medium quality study. The biggest weakness is lack of a treatment manual or link to established curriculum. However, the results look promising.

Single-Case Design EBP Inclusion Criteria Checklist

Instructions: Read each item and check the appropriate box. If you check “NO” at any time, the article can be discarded as it will not be included as evidence for a practice.

Item	YES	NO	Rationale
Does the dependent variable align with the research question or purpose of the study?			
Was the dependent variable clearly defined such that another person could identify an occurrence or non-occurrence of the response?			
Does the measurement system align with the dependent variable and produce a quantifiable index?			
Did a secondary observer collect data on the dependent variable for at least 20% of sessions across conditions?			
Was mean interobserver agreement (IOA) 80% or greater OR kappa of .60 or greater?			
Is the independent variable described with enough information to allow for a clear understanding about the critical differences between the baseline and intervention conditions, or were references to other material used if description does not allow for a clear understanding?			
Was the baseline described in a manner that allows for a clear understanding of the differences between the baseline and intervention conditions?			
Are the results displayed in graphical format showing repeated measures for a single case (e.g., behavior, participant, group) across time?			
Do the results demonstrate changes in the dependent variable when the independent variable is manipulated by the experimenter at three different points in time or across three phase repetitions? *Alternating treatment designs require at least 4 repetitions of the alternating sequence.			

Group Design EBP Inclusion Criteria Checklist

Instructions: Read each item and check the appropriate box. If you check “NO” at any time, the article can be discarded as it will not be included as evidence for a practice.

Item	YES	NO	Rationale
Does the study have experimental and control/comparative groups?	x		
Were appropriate procedures used to increase the likelihood that relevant characteristic of participants in the sample were comparable across conditions?	x		
Was their evidence for adequate reliability for the key outcome measures? And/or when relevant, was inter-observer reliability assessed and reported to be at an acceptable level?	x		Measures' reliability was reported, but data for this sample not provided.
Were outcomes for capturing the intervention's effect measured at appropriate times (at least pre- and post-test)?	x		
Was the intervention described and specified clearly enough that critical aspects could be understood?	x		
Was the control/comparison condition(s) described?	x		Only described as a waitlist control.
Were data analysis techniques appropriately linked to key research questions and hypotheses?	x		
Was attrition NOT a significant threat to internal validity?	x		
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?	x		

TIAC EBP Literature Review
Article Inclusion Checklist Answers and Rationale

Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)	x		
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Article Reference:	Hawkins, B. L., Ryan, J. B., Cory, A. L., & Donaldson, M. C. (2014). Effects of Equine-Assisted Therapy on Gross Motor Skills of Two Children with Autism Spectrum Disorder: A Single-Subject Research Study. <i>Therapeutic Recreation Journal</i> , 48(2), 135-149.
IV Description	Single case study. Children received 5 weeks of 3x/wk, 30 mins each private riding sessions with certified staff, following PATH international guidelines. Primary aim was motor skill.
DV	BOT2 Motor Skill.
# in study	2
Age ranges	7 and 11 yrs
Diagnoses	PDD-NOS and Autism, community Dx and confirmed with CARS
Design	Single case Multiple baseline
Study Results	P1 improved 21 percentage points on motor skill, P2 improved 77 percentage points. PEM (points exceeding the median) for P1 was 90%, for P2 was 100%, on motor skill on the BOT2.
Reviewer Comments	This is a high quality single case design study.

Single-Case Design EBP Inclusion Criteria Checklist

Instructions: Read each item and check the appropriate box. If you check “NO” at any time, the article can be discarded as it will not be included as evidence for a practice.

Item	YES	NO	Rationale
Does the dependent variable align with the research question or purpose of the study?	X		
Was the dependent variable clearly defined such that another person could identify an occurrence or non-occurrence of the response?	X		
Does the measurement system align with the dependent variable and produce a quantifiable index?	X		
Did a secondary observer collect data on the dependent variable for at least 20% of sessions across conditions?	X		
Was mean interobserver agreement (IOA) 80% or greater OR kappa of .60 or greater?	X		
Is the independent variable described with enough information to allow for a clear understanding about the critical differences between the baseline and intervention conditions, or were references to other material used if description does not allow for a clear understanding?	X		
Was the baseline described in a manner that allows for a clear understanding of the differences between the baseline and intervention conditions?	X		
Are the results displayed in graphical format showing repeated measures for a single case (e.g., behavior, participant, group) across time?	X		
Do the results demonstrate changes in the dependent variable when the independent variable is manipulated by the experimenter at three different points in time or across three phase repetitions? *Alternating treatment designs require at least 4 repetitions of the alternating sequence.	X		

Group Design EBP Inclusion Criteria Checklist

Instructions: Read each item and check the appropriate box. If you check “NO” at any time, the article can be discarded as it will not be included as evidence for a practice.

Item	YES	NO	Rationale
Does the study have experimental and control/comparative groups?			
Were appropriate procedures used to increase the likelihood that relevant characteristic of participants in the sample were comparable across conditions?			
Was their evidence for adequate reliability for the key outcome measures? And/or when relevant, was inter-observer reliability assessed and reported to be at an acceptable level?			
Were outcomes for capturing the intervention’s effect measured at appropriate times (at least pre- and post-test)?			
Was the intervention described and specified clearly enough that critical aspects could be understood?			
Was the control/comparison condition(s) described?			
Were data analysis techniques appropriately linked to key research questions and hypotheses?			
Was attrition NOT a significant threat to internal validity?			
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?			

TIAC EBP Literature Review
Article Inclusion Checklist Answers and Rationale

Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)			
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