Best Evidence Statement (BESt)

Date: August 25, 2011

Title: Craniosacral Therapy for Children with Autism and/or Sensory Processing Disorder

Clinical Question
- **P** (population/problem) Among children with autism spectrum disorder or sensory processing disorder
- **I** (intervention) does the use of craniosacral therapy (CST)
- **C** (comparison) compared to standard care without CST
- **O** (outcome) improve behavior?

Target Population: Children (ages 3 and up) with Autism Spectrum Disorder (ASD) and/or Sensory Processing Disorder (SPD).

Definitions of intervention:
Craniosacral therapy (CST) is a gentle, noninvasive type of hands-on body treatment in which the therapist monitors the patient’s craniosacral rhythm (subtle pulsations of the craniosacral fluid) by placing the hands at specific locations on the cranium, spine and sacrum (Mehl-Madrona 2007 [2a]). CST is commonly practiced by a licensed massage therapist with massage therapy techniques.

CST is considered to be a Complementary and Alternative Medicine (CAM) therapy. The National Center for Complementary and Alternative Medicine (NCCAM), an institute of the NIH, defines CAM as a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine (NCCAM website 2010 [5a]).

Behaviors include but are not limited to sleep problems, off-task behaviors, attentiveness at school, ASD/SPD stereotypical behaviors, self-injurious behavior, disruptive social skills, repetitive body movements, cooperation issues, verbal outbursts, head banging, hitting, biting, anxiety, obsession, difficulty with eye contact, inability to focus.

Recommendation (See Table of Recommendation Strength following references)
There is insufficient evidence and a lack of consensus to make a recommendation on using CST to improve the behavior of children with autism and sensory processing disorder.

- **Note**: Concerns are raised in the literature about the validity of the tools used to measure the craniosacral rhythm, identify craniosacral dysfunction and efficacy of craniosacral treatment (Green 1999 1a, Levy 2005 [5b]).

List relevant CCHMC policies / procedures: Integrative Care Craniosacral Therapy Competency

Discussion/summary of evidence
There is currently inadequate research to support the use of CST among children with Autism Spectrum Disorders (ASD) and/or sensory processing disorder (SPD). Three studies reported on the use of CAM therapies in a pediatric autistic population naming CST as a CAM therapy but did not report specifically on
CST (Akins 2010 [5a], Levy 2005 [5b], Weber 2007 [5a]). One systematic review reported on the use of CST but not specifically with children with autism (Green 1999 [1a]). One descriptive study included CST in reporting the use of CAM therapies in pediatric patients but not specifically children with autism (Low 2008 [4a]). One case study reported on CST but not specifically with children with autism (Gillespie 2009 [5a]). Also included in the body of evidence is a small RCT study (n=20) of children with ASD who received parent delivered massage therapy (Escalona 2001 [2a]). The treatment group received nightly massage therapy for 15 minutes (Escalona 2001 [2a]). The comparison group received a nightly routine of reading with their parents (Escalona 2001 [2a]). Children in the massage treatment group showed improvements with sleep problems, off-task behaviors, attentiveness at school and stereotypical behaviors (Escalona 2001 [2a]). Although this study provides some evidence for the benefits of massage, this study did not specifically address the craniosacral technique. No other studies of CST were identified in adults or children with ASD and/or SPD.

Grade for the body of evidence is low.

**Research Agenda**
- Inclusion of comparison groups would strengthen the methodology of future studies of CST (Weber 2007 [5a]).
- Identify validated tools to measure clinical outcomes.

**Health Benefits, Side Effects and Risks**
An open label (n=68) observational study of CST and acupuncture treatments in adults with asthma reported improved asthma quality of life scores and reduced medication usage (Mehl-Madrona 2007 [2a]).

No side effects or adverse events were reported in four studies included in this review (Akins 2010 [5a], Hanson 2007 [4a], Low 2008 [4a], Mehl-Madrona 2007 [2a]).

Although the safety of CST has not generally been questioned, there are no studies specifically addressing safety or adverse outcomes. Specific data on safety outcomes or adverse events is sparse (Mehl-Madrona 2007 [2a], Low 2008 [4a] and Akins 2010 [5a]). Upledger craniosacral training programs state that acute intracranial hemorrhage, intracranial aneurysm, recent skull fracture and herniation of the medulla oblongata (Upledger 1983 [5b]) are contraindications for CST. The theoretical basis for this is the potential to increase intracranial pressure with CST. Data to support this idea is not reported in the literature.

**References**


Note: Full tables of evidence grading system available in separate document:
- Table of Evidence Levels of Individual Studies by Domain, Study Design, & Quality (abbreviated table below)
- Grading a Body of Evidence to Answer a Clinical Question
- Judging the Strength of a Recommendation (abbreviated table below)

<table>
<thead>
<tr>
<th>Quality level</th>
<th>Definition</th>
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<tr>
<td>1a† or 1b†</td>
<td>Systematic review, meta-analysis, or meta-</td>
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<td></td>
<td>synthesis of multiple studies</td>
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<tr>
<td>2a or 2b</td>
<td>Best study design for domain</td>
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<tr>
<td>3a or 3b</td>
<td>Fair study design for domain</td>
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<tr>
<td>4a or 4b</td>
<td>Weak study design for domain</td>
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<tr>
<td>5a or 5b</td>
<td>General review, expert opinion, case report,</td>
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<td></td>
<td>consensus report, or guideline</td>
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<td>5</td>
<td>Local Consensus</td>
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†a = good quality study; b = lesser quality study
Table of Recommendation Strength (see note above)

<table>
<thead>
<tr>
<th>Strength</th>
<th>Definition</th>
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<tr>
<td>“Strongly recommended”</td>
<td>There is consensus that benefits clearly outweigh risks and burdens</td>
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<tr>
<td></td>
<td>(or visa-versa for negative recommendations).</td>
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<tr>
<td>“Recommended”</td>
<td>There is consensus that benefits are closely balanced with risks and burdens.</td>
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<tr>
<td>No recommendation made</td>
<td>There is lack of consensus to direct development of a recommendation.</td>
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Dimensions: In determining the strength of a recommendation, the development group makes a considered judgment in a consensus process that incorporates critically appraised evidence, clinical experience, and other dimensions as listed below.

1. Grade of the Body of Evidence (see note above)
2. Safety / Harm
3. Health benefit to patient (direct benefit)
4. Burden to patient of adherence to recommendation (cost, hassle, discomfort, pain, motivation, ability to adhere, time)
5. Cost-effectiveness to healthcare system (balance of cost / savings of resources, staff time, and supplies based on published studies or onsite analysis)
6. Directness (the extent to which the body of evidence directly answers the clinical question [population/problem, intervention, comparison, outcome])
7. Impact on morbidity/mortality or quality of life

Supporting Information

Introductory/background information

A 2007 descriptive study by Low, reports 57 percent of 185 families with children of various levels of health who completed the survey, are using Complementary and Alternative Medicine (CAM) therapies for their child (p. 147 [4a]). CAM is used by an estimated 20-40% of healthy children seen in outpatient settings and 30-70% of children with special health care needs (Kemper 2008 [1a]). A descriptive study reported that 74% of children with ASD have used CAM therapies to treat autism (Hanson 2007 [4a]) and Akins reported that 52-95% of families with a child with autism are using CAM treatments (p. 308 [5a]). Low reports, of the 57% of families who affirmed CAM usage, 14% of these families use craniosacral therapy treatments specifically (p. 148 [4a]). This evidence shows a clear public interest in the use of CAM therapies to address some pediatric medical conditions.

CST) is commonly practiced by a licensed massage therapist or other professionals with a license to touch. It is important that a CST therapist obtain adequate training in CST prior to applying treatment in a pediatric population. Cincinnati Children’s requires that all Holistic Health Specialists who treat patients meet the competency standards stated in the Integrative Care Craniosacral Therapy Competency. Some healthcare providers are reluctant to refer for CST due to the lack of scientific evidence. Greater understanding and awareness of the potential benefits will increase accessibility for children who may benefit from CST.

Clinicians who practice CST with patients with ASD anecdotally observe a decrease in self-injurious behavior and improved social skills (Upledger 1983 [5b]). Additionally, CST is often very relaxing and calming supporting overall health and wellness. However these benefits have not been generally studied and reported in the medical literature.

Local data from the Cincinnati Children’s Hospital Integrative Care Out-patient Clinic reveals that parents of children with autism and/or sensory processing disorder seek CST treatments for their child. Parents report improvements in behavior, ability to focus and social skills. CST treatments are paid for out of pocket yet; parents often will set up regularly scheduled CST appointments for their child.

When looking at the local data from 2008 to 2011, 24% (n=37) of all patients seen at the Integrative Care Clinic at Cincinnati Children’s Hospital Medical Center were children with ASD, SPD disorder and/or
behavior issues. Of these patients 31% \((n=9)\) have incorporated this therapy into their regular treatment plan as evidenced by scheduling regular appointments.

**Group/team members**

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**Search strategy**

**Databases:** Ovid-Cochrane, Medline, EBSCO-Cinahl, Health Watch

**Keywords:** Craniosacral therapy, craniosacral, autism, autism spectrum disorder, sensory integration disorder, sensory integration, sensory processing disorder, SPD, alternative treatments, CAM therapies, CAM, massage therapy, integrative therapies, anxiety, ADD/ADHD, tantrums, behavior issues, behavior problems, behavior, safety, efficacy

**Limits:** None, all dates included

**Retrieved:** September 2010-July 2011

Copies of this Best Evidence Statement (BEST) are available online and may be distributed by any organization for the global purpose of improving child health outcomes. Website address: [http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/ev-based/default.htm](http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/ev-based/default.htm) Examples of approved uses of the BEST include the following:

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- the BEST may be adopted or adapted for use within the organization, provided that CCHMC receives appropriate attribution on all written or electronic documents; and
- copies may be provided to patients and the clinicians who manage their care.

Notification of CCHMC at HPCEInfo@cchmc.org for any BEST adopted, adapted, implemented or hyperlinked by the organization is appreciated.

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**Note**

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.

Reviewed against quality criteria by 2 independent reviewers.