

Date: April 4, 2013

Title: Horticultural Therapy for Children and Adolescents in Residential Treatment for Mental Health

Clinical Question:

- | | | |
|---|----------------------|---|
| P | (Population/Problem) | Among children and adolescents ages 8-18 years with mental health diagnosis |
| I | (Intervention) | does participation in horticultural therapy |
| C | (Comparison) | compared to no participation in horticultural therapy |
| O | (Outcome) | decrease aggression and depression and increase self-esteem? |

[Definitions for terms marked with * may be found in the Supporting Information section.](#)

Target Population for the Recommendation:

Inclusion: Children and adolescents, 8-18 years of age who are diagnosed with a mental health disorder; in residential treatment at a mental health facility.

Exclusion: Children and adolescent, 8-18 years of age in residential treatment at a mental health facility; who do not meet established criteria for on grounds activities.

Recommendations:

It is recommended that horticultural therapy be provided for children and adolescents with mental health diagnosis to decrease depression (*Gonzalez 2011 [3b]*; *Gonzalez 2010 [4a]*; *Cassidy 1996 [4b]*); and increase self-esteem (*Local Consensus [5]*).

There is insufficient evidence to make a recommendation regarding the effects of horticultural therapy on aggression in children with mental health diagnosis.

Note: Horticulture Therapy does not change or decrease active aggressive episodes. Children display fewer aggressive episodes while in horticulture therapy.

Discussion/Synthesis of Evidence related to the recommendations:

There were no pediatric studies that directly answered the clinical question, however there was adult evidence. There was one study of children participating in horticulture activities which noted increased basic horticulture knowledge. However self-esteem was not measured (*Williams 1988 [4b]*). Studies of adults with mental health diagnoses including depression show that participation in horticulture therapy decreases depression (*Gonzalez 2011 [3b]*) and brooding (*Gonzalez 2010 [4a]*). Having a positive attitude while participating in leisure activities lowers depression, anxiety and hostility (*Cassidy 1996 [4b]*). Although this is adult evidence, it is transferable to children and adolescents because of the similarities in therapeutic activities and outcomes for children and adolescents.

There is anecdotal evidence that children and adolescent with an aggressive history appear calmer and display fewer aggressive episodes while in horticultural therapy (*Local Consensus [5]*). These children demonstrate respect for living things such as plants and their peers. As a result, they appear to have a sense of belonging and ownership, for their behavior and the garden. Children and adolescents tend to present with a positive affect and feel pride for their efforts. They are consistent and committed to the program. There is anecdotal evidence that children and adolescent participating horticulture activities such as planting, transplanting, weeding and harvesting are empowered and show increased self-esteem (*Local Consensus [5]*). They display increased confidence due to their ability to retain skills, teach others and their overall competence gained from caring for plants. They are cooperative, less fearful of trying new task and willing to accept feedback from others. They are open to trusting others and willing to follow garden rules and expectations. Additional research is needed to show the effect of participation in horticultural therapy on self-esteem, aggression and depression in children and adolescents with mental health diagnosis.

Reference List:

- Cassidy, T.:** All work and no play: a focus on leisure time as a means for promoting health. *Counselling Psychology Quarterly*, 9(1): 77-90, 1996, [4b]] <http://www.ncbi.nlm.nih.gov/pubmed/1997031428>. Language: English. Entry Date: 19970901. Revision Date: 20091218. Publication Type: journal article 🗨️.
- Gonzalez, M. T.; Hartig, T.; Patil, G. G.; Martinsen, E. W.; and Kirkevold, M.:** A prospective study of group cohesiveness in therapeutic horticulture for clinical depression. *Int J Ment Health Nurs*, 20(2): 119-29, 2011, [3b]] <http://www.ncbi.nlm.nih.gov/pubmed/21371227> 🗨️.
- Gonzalez, M. T.; Hartig, T.; Patil, G. G.; Martinsen, E. W.; and Kirkevold, M.:** Therapeutic horticulture in clinical depression: a prospective study of active components. *J Adv Nurs*, 66(9): 2002-13, 2010, [4a]] <http://www.ncbi.nlm.nih.gov/pubmed/20626473> 🗨️.
- Local Consensus:** during the guideline development timeframe. ed., [5] 🗨️.
- Williams, P., and Mattson, R.:** Horticultural Activities and Demographic Factors Influence Children's Self-esteem. *Journal of Therapeutic Horticulture*, 1988, [4b] 🗨️.

IMPLEMENTATION**Applicability Issues:**

There are potential safety concerns when engaging in outside activities with children and adolescents in residential treatment. Client's history of high risk behavior and risk of elopement should be assessed prior to participation.

An important element in this process is properly identifying clients for outside activities by utilizing residential psychiatry resources, such as an On Grounds Activity Planning Decision Tree.

A formalized procedure should be used to evaluate client's interest, attitude, conflicting behaviors, aggression and mental status, such as an Elopement Risk Assessment.

Client and staff safety should be considered by providing adequate staffing in accordance to client needs and risk assessment.

Weather can also be a factor for outside activities.

Available resources and supplies can also be a barrier for effective horticultural therapy programs, such as inadequate gardening and activity materials and space. Adequate supplies aid in fascination and enhance clients' interest, which may increase their attention to task and eliminate distractive behaviors.

Horticultural Therapy can be a labor and cost intense program, funding may be an issue. Development and continuation maybe funded by donations and or grant funding.

Relevant CCHMC Tools for Implementation:

On Grounds Activity Planning Decision Tree
Residential Elopement Risk Assessment

Outcome or Process Measures:

Potential outcomes for offering Horticultural Therapy include improved patient and family satisfaction surveys and decreased depression for clients during their residential treatment stay. For children with aggression, decreased aggression will be noted as seen on the Overt Aggression Screening tool in the patient electronic medical record. For children with depression a decrease in depression can be noted by utilizing appropriate depression inventories such as the Beck Depression Inventory (*Local Consensus [5]*).

SUPPORTING INFORMATION

Background/Purpose of BEST Development:

Children and adolescents in residential treatment for mental health diagnosis display aggression, low self-esteem and depressed mood. Developing an evidence based horticultural therapy program designed to produce measurable outcomes may improve patient safety, quality of service and outcomes for clients in residential treatment. This BEST was developed to further explore evidence of the effectiveness of a program.

Definitions:

The American Horticultural Therapy Association (AHTA) defines Horticultural Therapy as the engagement of a client in horticultural activities facilitated by a trained therapist to achieve specific and documented treatment goals.

Search Strategy:

Databases: Medline, PubMed, CINAHL, PsycInfo, Cochrane Library

Search Terms: Depression, Horticultural Therapy, Mental Health, Psychiatry, horticulture, children, residential treatment, long-term, mental health treatment, activities, self-esteem, aggression, leisure activities and gardening.

Limits, Filters, Search Dates: 1987-2012 English

Date of last search: August 17, 2012

Relevant CCHMC Evidence-Based Documents:

None were found

Group/Team Members:

Team Leader/Author: Tyra Warner, BS, CTRS, Division of OT/PT/TR in Psychiatry, TRII

Ad hoc Members: Margie Hay, Certificate in Horticultural Therapy, Certified Landscape Technician, Master Gardner, Gardner II Division of Psychiatry

Senior Clinical Director: Rebecca D. Reder OTD, OTR/L, Division of Occupational Therapy and Physical Therapy

Support/Consultant: Mary Ellen Meier MSN, RN, CPN; Center for Professional Excellence and Integration

Ad hoc Advisors: Matt Schwendeman MHSA, OTR/L, Division of OT/PT/TR in Psychiatry, Mary Gilene, MBA, Division of Occupational Therapy and Physical Therapy

Conflicts of Interest were declared for each team member:

- No financial conflicts of interest were found.
- No external funding was received for development of this BEST.
- The following financial conflicts of interest were disclosed:

Note: Full tables of the [LEGEND evidence evaluation system](#) are available in separate documents:

- [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](#) (dimensions table below)

Table of Evidence Levels (see note above):

Quality level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5a or 5b	General review, expert opinion, case report, consensus report, or guideline
5	Local Consensus

†a = good quality study; b = lesser quality study

Table of Language and Definitions for Recommendation Strength (see note above):

Language for Strength	Definition
It is strongly recommended that... It is strongly recommended that... not...	When the dimensions for judging the strength of the evidence are applied, there is high support that benefits clearly outweigh risks and burdens. (or visa-versa for negative recommendations)
It is recommended that... It is recommended that... not...	When the dimensions for judging the strength of the evidence are applied, there is moderate support that benefits are closely balanced with risks and burdens.
There is insufficient evidence and a lack of consensus to make a recommendation...	
<i>Given the dimensions below and that more answers to the left of the scales indicate support for a stronger recommendation, the recommendation statement above reflects the strength of the recommendation as judged by the development group. (Note that for negative recommendations, the left/right logic may be reversed for one or more dimensions.)</i>	
Rationale for judgment and selection of each dimension:	
1. Grade of the Body of Evidence	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low
<i>Rationale:</i> Low level descriptive studies and a controlled clinical trial	
2. Safety/Harm (Side Effects and Risks)	<input type="checkbox"/> Minimal <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Serious
<i>Rationale:</i> There is a risk of elopement for residential clients when outside for activities. Client's history of high risk behaviors and staffing should be considered.	
3. Health benefit to patient	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Minimal
<i>Rationale:</i> Engage in horticulture activities may increase endurance, improve motor skill and physical activity as well as, improved social skills and decreased stress.	
4. Burden on patient to adhere to recommendation	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Unable to determine <input type="checkbox"/> High
<i>Rationale:</i>	
5. Cost-effectiveness to healthcare system	<input type="checkbox"/> Cost-effective <input checked="" type="checkbox"/> Inconclusive <input type="checkbox"/> Not cost-effective
<i>Rationale:</i> Horticultural Therapy programs may best be funded by donor or grant funds.	
6. Directness of the evidence for this target population	<input type="checkbox"/> Directly relates <input checked="" type="checkbox"/> Some concern of directness <input type="checkbox"/> Indirectly relates
<i>Rationale:</i> Although the published evidence was on adults, it can be applied to the pediatric population because the structure of the program and outcomes for children and adolescent are similar to adult programs.	
7. Impact on morbidity/mortality or quality of life	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low
<i>Rationale:</i> Clients appear calm, cooperative and have an increased sense of belonging while participating in horticultural therapy. They display respectful behaviors with plants and peers. Increased knowledge in basic horticulture knowledge maybe beneficial for vocational task.	

Copies of this Best Evidence Statement (BEST) and related tools (if applicable, e.g., screening tools, algorithms, etc.) 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/service/j/anderson-center/evidence-based-care/bests/>

Examples of approved uses of the BEST include the following:

- Copies may be provided to anyone involved in the organization's process for developing and implementing evidence based care;
- Hyperlinks to the CCHMC website may be placed on the organization's website;
- 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 EBDMinfo@cchmc.org for any BEST adopted, adapted, implemented, or hyperlinked by the organization is appreciated.

Please cite as: Warner, T., Cincinnati Children's Hospital Medical Center: Best Evidence Statement: Horticultural Therapy for Children and Adolescents in Residential Treatment for Mental Health, <http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/best.htm>, BEST 146, pages 1-5, 4/4/13.

This Best Evidence Statement has been reviewed against quality criteria by two independent reviewers from the CCHMC Evidence Collaboration. Conflict of interest declaration forms are filed with the CCHMC EBDM group.

Once the BEST has been in place for five years, the development team reconvenes to explore the continued validity of the guideline. This phase can be initiated at any point that evidence indicates a critical change is needed. CCHMC EBDM staff performs a quarterly search for new evidence in an horizon scanning process. If new evidence arises related to this BEST, authors are contacted to evaluate and revise, if necessary.

For more information about CCHMC Best Evidence Statements and the development process, contact the Evidence Collaboration at EBDMinfo@cchmc.org.

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.