Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Best evidence statement (BESt). Coordination of outpatient rehabilitative care for patients with traumatic brain injury (TBI) and their families.

Bibliographic Source(s)

Best evidence statement (BESt). Coordination of outpatient rehabilitative care for patients with traumatic brain injury (TBI) and their families. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2012 Dec 20. 7 p. [9 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The strength of the recommendation (strongly recommended, recommended, or no recommendation) and the quality of the evidence (1aâ€'5b) are defined at the end of the "Major Recommendations" field.

1. It is recommended that children who have sustained a traumatic brain injury (TBI) and have been discharged from an inpatient rehabilitation setting, receive a coordinated multi-disciplinary approach to rehabilitative care to improve functional performance (Kim & Colantonio, 2010 [1a]; Cicerone et al., 2008 [2b]; Altman et al., 2010 [4b]; Commission on Accreditation of Rehabilitation Facilities [CARF], 2012 [5a]).
   Note: While there is a lack of pediatric-focused evidence for children with TBI, there are pediatric clinical guidelines that specify the need for a coordinated multi-disciplinary rehabilitation approach with children. The 2012 CARF International Standards Manual for Pediatric Specialty Programs [5a] states that accredited programs should be: multi-disciplinary, coordinated and functional-performance-driven. Additionally, the National Institutes of Health incorporates the pediatric component in its consensus document focused on rehabilitation for the TBI population: "Specialized, interdisciplinary, and comprehensive treatment programs are necessary to address the particular medical, rehabilitation, social, family and educational needs of young and school-aged children with TBI" (National Institutes of Health, 1999 [5a]).

2. There is insufficient evidence and a lack of consensus to make a recommendation that the impact of a coordinated multi-disciplinary rehabilitation approach improves quality of life or caregiver satisfaction (Cicerone et al., 2008 [2b]).
   Note: One study involving a coordinated multi-disciplinary approach indicates a statistically increased effect on perceived quality of life, however, the volume of additional evidence in support of this outcome is lacking. There is no evidence regarding caregiver satisfaction with this approach (Cicerone et al., 2008 [2b]).

Definitions:

Table of Evidence Levels

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 Recommendation Strength

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…	

Note: See the original guideline document for the dimensions used for judging the strength of the recommendation.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Traumatic brain injury (TBI)

Guideline Category

Management

Rehabilitation

Clinical Specialty

Family Practice

Internal Medicine

Neurology

Pediatrics

Physical Medicine and Rehabilitation

Intended Users

Advanced Practice Nurses

Nurses

Physical Therapists

Physician Assistants

Physicians

Guideline Objective(s)

To evaluate, among children who have sustained a traumatic brain injury (TBI) who have been discharged from an inpatient rehabilitation unit; if participation in a coordinated multi-disciplinary program for outpatient rehabilitation versus a non-formalized multi-disciplinary approach, affects quality of life, caregiver satisfaction, and/or functional performance skills

Target Population

Children (ages 3 and above), adolescents, and young adults up to 21 years of age, who have: sustained a traumatic brain injury (TBI), been discharged from an inpatient rehabilitation unit and transitioned to the community for post-discharge rehabilitation services

Note: Patients with acquired brain injuries (ABI) (congenital brain injuries, brain tumors, stroke, encephalitis, hypoxia, or a mixed ABI population) are excluded from the guideline.

Interventions and Practices Considered

Coordinated multi-disciplinary program for outpatient rehabilitation

Major Outcomes Considered

- Quality of life
- Caregiver satisfaction
- Functional performance skills

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Search Strategy

- Databases: PubMed, EBSCO, Medline, Ovid, Cochrane
- Search Terms: traumatic brain injury, brain injury, multidisciplinary, interdisciplinary, intradisciplinary, neurorehabilitative disorder, neurorehabilitation, outpatient rehabilitation, neurorehabilitation program, transition from hospital to home, discharge, rehabilitation, outpatient, outpatient therapy, community re-entry, community re-integration, milieu based rehabilitation, comprehensive rehabilitation, holistic rehabilitation, cooperative health care Activities of Daily Living, occupational therapy, comprehensive outpatient rehabilitation, paediatric, pediatric, child, childhood, preschool, toddler, health care management, continuity of care, case management, family, caregiver, quality of life, satisfaction, outcomes
- Limits, Filters, Search Dates: 1/1/2005 to 8/1/2012
- Date Search Done: 1/10/2012 to 8/1/2012

Number of Source Documents

Following an extensive literature search, three articles met the inclusion criteria

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Table of Evidence Levels

Quality Level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
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5a or 5b	General review, expert opinion, case report, consensus report, or guideline
5	Local Consensus

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

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Table of Recommendation Strength

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…	

Note: See the original guideline document for the dimensions used for judging the strength of the recommendation.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

This Best Evidence Statement has been reviewed against quality criteria by two independent reviewers from the Cincinnati Children's Hospital Medical Center (CCHMC) Evidence Collaboration.

Evidence Supporting the Recommendations

References Supporting the Recommendations

Altman IM, Swick S, Parrot D, Malec JF. Effectiveness of community-based rehabilitation after traumatic brain injury for 489 program completers compared with those precipitously discharged. Arch Phys Med Rehabil. 2010 Nov;91(11):1697-704. PubMed

Cicerone KD, Mott T, Azulay J, Sharlow-Galella MA, Ellmo WJ, Paradise S, Friel JC. A randomized controlled trial of holistic neuropsychologic rehabilitation after traumatic brain injury. Arch Phys Med Rehabil. 2008 Dec;89(12):2239-49. PubMed

Commission of Accreditation of Rehabilitation Facilities (CARF). International standards manual for pediatric specialty programs. Tucson (AZ): Commission of Accreditation of Rehabilitation Facilities (CARF); 2012.

Kim H, Colantonio A. Effectiveness of rehabilitation in enhancing community integration after acute traumatic brain injury: a systematic review. Am J Occup Ther. 2010 Sep-Oct;64(5):709-19. PubMed

National Institutes of Health. Rehabilitation of persons with traumatic brain injury. Bethesda (MD): National Institutes of Health (NIH); 1999.

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Improved quality of life
- Multi-disciplinary improvements will increase the standard of care
- Caregiver efforts will be more coordinated and refined
- Over time, costs would decrease due to decreased family questions, decreased duplicity of efforts/services, etc.

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

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.

Implementation of the Guideline

Description of Implementation Strategy

Applicability Issues

The approach an institution takes to operationalize coordinated multi-disciplinary rehabilitative care in an outpatient setting will highly depend upon available resources and the current organizational systems in place. It is important to consider that patients and their families receive services at many different types of institutions with various intervention formats. This document is intended to highlight effective outpatient service characteristics, however, it is not expected that a coordinated, multi-disciplinary rehabilitation approach will be an available option for everyone. In

order for an institution to offer coordinated multi-disciplinary services, a commitment must be made to implement the characteristics recommended. Additionally, functional outcomes need to be utilized that are valid, reliable, easy-to-implement in a clinical setting, and be applicable to the population of focus. Additionally, the traumatic brain injury (TBI) literature is sparse in the areas of quality of life and caregiver satisfaction in relationship to the variables explored.

Implementation Tools

Audit Criteria/Indicators

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 Dec 20

Guideline Developer(s)

Cincinnati Children's Hospital Medical Center - Hospital/Medical Center

Source(s) of Funding

Guideline Committee

Not stated

Composition of Group That Authored the Guideline

Team Leader/Author: Beth Warnken, MOT, OTR/L, ATP, CCHMC Division of Occupational and Physical Therapy

Team Members/Co-Authors: Jody Raugh, PT, DPT, CCHMC Division of Occupational and Physical Therapy; Becky Reder, OTR/L, OTD, Senior Clinical Director, CCHMC Division of Occupational Therapy and Physical Therapy; Becky Rogers, OTR/L, MEd, CBIS, Coordinator, CCHMC Division of Occupational and Physical Therapy; Amy Wenz, OTD, OTR/L, Clinical Manager, CCHMC Division of Occupational and Physical Therapy

Support/Consultant: Patti Besuner RN, MN, CCHMC Evidence Based Practice Mentor; Michelle Kiger, MOT, OTR/L, Coordinator, CCHMC Division of Occupational and Physical Therapy; Jennifer Schmit, DPT, PhD, Director of Neurodevelopmental Physical Therapy Research, CCHMC Division of Occupational and Physical Therapy

Financial Disclosures/Conflicts of Interest

Conflict of interest declaration forms are filed with the Cincinnati Children's Hospital Medical Center Evidence-based Decision Making (CCHMC EBDM) group.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Cincinnati Children's Hospital Medical Web site .

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

Availability of Companion Documents

The following are available:

- Judging the strength of a recommendation. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Jan. 1 p. Available from the Cincinnati Children's Hospital Medical Center .
- Grading a body of evidence to answer a clinical question. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 1 p. Available from the Cincinnati Children's Hospital Medical Center .
- Table of evidence levels. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Feb 29. 1 p. Available from the Cincinnati Children's Hospital Medical Center .

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

In addition, suggested process or outcome measures are available in the original guideline document .

Patient Resources

None available

NGC Status

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