Evidence-based interventions for individuals with traumatic brain injuries

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Disclosures

• Jerry Hoepner has the following relevant financial relationships in the products or services described, reviewed, evaluated or compared in this presentation.
  • University of Wisconsin – Eau Claire: salary
  • MSHA: honorarium for this seminar
  • Royalties for chapters in Johnson, P. (Eds.) textbook

• Jerry Hoepner has no relevant non-financial relationships to disclose
Learner Outcomes

• The importance of distinguishing between stability of status along the acute-sub-acute-chronic continuum.
• How to conduct an ecologically valid assessment for persons with TBI across acute-chronic continuum.
• How to implement ecologically valid interventions for persons with TBI across acute-chronic continuum.
WHO-ICF 2001

- Health Condition (Aphasia)
  - Body Functions and Structures
  - Activity
  - Participation
    - LPAA
    - Contextual Factors
      - Environmental Factors
      - Personal Factors
TBI Assessing and intervening along the severity/recovery continuum

- **Acute**
  - Mild
  - Severe
  - Earlier/least stable

- **Subacute**
  - Mild
  - Severe

- **Chronic**
  - Mild
  - Severe
  - Later/most stable
TBI Acute

Mild TBI
- Symptom Inventories
- Possibly orientation measures (Galveston Orientation & Amnesia Test)
- Higher level cognitive batteries (RBANS, CLQT, MLCA, BTHI)

Moderate TBI
- Agitated Behavior Scale
- Supervision Rating Scale
- Possibly cognitive batteries

Severe TBI (Coma emergence)
- Western Neuro Sensory Stimulation Profile
- Madonna
- Rappaport Near Coma Scale
- JFK Coma Scale
- Disability Rating Scale (DRS)
- NOMS or FIM
- Ranchos LOCF Scales
- Talking Mats
TBI Sub-Acute to Chronic

**Mild TBI**
- RBMT
- SCATBI
- BADS
- TASIT
- FAVRES
- CVLT
- TEA
- RBANS
- MCLA
- CLQT
- CHBT
- Trailmaking
- WCST

**Moderate TBI**
- Cognitive batteries
- Language batteries
- Ranchos LOCF
- TASIT
- FAVRES
- CVLT
- Contextual Hypothesis Based Testing (CHBT)

**Severe TBI**
- FIM
- NOMS
- Talking Mats
- Ranchos LOCF
- ABCD
- Trailmaking
- WCST
- TEA
- RBANS
- MCLA
- CLQT
- CHBT
**Appendix A: Standardized Tests Reviewed**

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<td>Communication Activities of Daily Living (Second Edition)</td>
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<td>Galveston Orientation and Amnesia test</td>
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<td>Ranchos Los Amigos Levels of Cognitive Functioning</td>
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<td>Rivermead Behavioral Memory Test</td>
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<td>Ross Information Processing Assessment (Second Edition)</td>
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<td>Scales of Cognitive Ability for Traumatic Brain Injury (Normed Edition)</td>
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<td>Test of Everyday Attention for Children</td>
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<td>Test of Language Competence – Extended</td>
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<td>Western Aphasia Battery</td>
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CONCEPTUAL PAPER

Using the ICF in goal setting: Clinical application using Talking Mats

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Abstract

**Purpose.** The purpose of this article is to suggest how Talking Mats® can be used in accordance with the International Classification of Functioning, Disability and Health (ICF) proposed by the World Health Organisation (WHO) when setting intervention goals.

**Method.** A theoretical framework for using Talking Mats® when setting intervention goals in accordance with the ICF is provided.

**Conclusions.** An international system such as the ICF offers a conceptual framework that can be used to set appropriate goals for intervention. Talking Mats® on the other hand can be seen as the strategy through which individuals can be empowered to participate in this goal-setting activity.

**Keywords:** Communication difficulties, goal setting, ICF, participation, rehabilitation, talking mats®
Personal Relevance & Goal Setting

• Minimal demands on working memory
• Allows for multiple sorts and thus more specific information

Murphy & Cameron, 2000; Murphy et al., 2010
Full autobiographical sketch is in the AAC for Adults with Acute or Chronic Medical Conditions text by Beukelman, Garrett, & Yorkston, 2007.
Routine-Based Interview

- Examines existing routines
- Piggy-backs on existing routines
- Establishes priorities

McWilliam, 2010
Interactional/Conversational Assessments

• Elicits perceptions of interactional behaviors by client and partner

• Can be used retrospectively (traditional) or directly (video review)

• Can highlight consensus and discrepancies

• Can provide insight into partner knowledge & attitudes

Hoepner & Turkstra, 2013; Hoepner, 2010; Turner & Whitworth, 2006; Kagan et al., 2001; Olswang et al., 1998
Kagan scales (MPC & MSC)

• Measure of participation in conversation (MPC) examines client contributions
  • Interaction – engagement
  • Transaction – productivity

• Measure of skill in supported conversation (MSC) examines partner support
  • Acknowledging competence
  • Revealing competence

• Has been modified for use with TBI (Togher, 2010)
Environmental Assessment

- WHO-ICF model (2001)
- Environmental Press Model (Lawton & Nahemow, 1973)
  - SLP, RN, OT, PT conduct
  - What existing conditions support success vs. contribute to struggle with performance? (barriers & facilitators)
- Performance across partners

Brush, Sanford, Fleder, Bruce, & Calkins, 2011
Agitated Behavior Scale

• A middle-phase assessment tool for TBI and mild-mod dementias
• A good framework for dynamic environmental and partner assessment
• Sampling across partners, across time of day, across environmental contexts
• A starting point for positive interventions

• ≤21 – within normal limits
• 22-28 – mild agitation
• 29-35 – moderate agitation
• >35 – severe agitation

Bogner, 2000; Tabloski, McKinnon-Howe, & Remington, 1995; Corrigan, Bogner, & Tabloski, 1996
**AGITATED BEHAVIOR SCALE**

**Patient** ___________________________  **Period of Observation:**

- a.m.  

**Observ. Environ.** ___________________________  **From:** _______ p.m. ___/___/____  

- a.m.  

**Rater/Disc.** ___________________________  **To:** _______ p.m. ___/___/____

At the end of the observation period indicate whether the behavior described in each item was present and, if so, to what degree: slight, moderate or extreme. Use the following numerical values and criteria for your ratings.

1 = **absent**: the behavior is not present.

2 = **present to a slight degree**: the behavior is present but does not prevent the conduct of other, contextually appropriate behavior. (The individual may redirect spontaneously, or the continuation of the agitated behavior does not disrupt appropriate behavior.)

3 = **present to a moderate degree**: the individual needs to be redirected from an agitated to an appropriate behavior, but benefits from such cueing.

4 = **present to an extreme degree**: the individual is not able to engage in appropriate behavior due to the interference of the agitated behavior, even when external cueing or redirection is provided.

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**DO NOT LEAVE BLANKS.**

- 1. Short attention span, easy distractibility, inability to concentrate.
- 2. Impulsive, impatient, low tolerance for pain or frustration.
- 3. Uncooperative, resistant to care, demanding.
- 4. Violent and or threatening violence toward people or property.
- 5. Explosive and/or unpredictable anger.
- 6. Rocking, rubbing, moaning or other self-stimulating behavior.
- 7. Pulling at tubes, restraints, etc.
- 8. Wandering from treatment areas.
- 10. Repetitive behaviors, motor and/or verbal.
- 11. Rapid, loud or excessive talking.
- 12. Sudden changes of mood.
- 13. Easily initiated or excessive crying and/or laughter.
- 14. Self-abusiveness, physical and/or verbal.

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**Total Score**
Validation Therapy

• Validate and redirect!
  • “I need to go to work”
  • “I need a cigarette”
  • “I have to go to the bathroom”

• Are there benefits to using this approach? Participation?

Neil & Briggs, 2003; Zeltzer, 2003; Toseland et al., 1997
Meet Ken! Late-Early/Early Middle Phase = Rancho IV

• Ken is a 45 year old man who crashed his snowmobile and was thrown unhelmeted across the ice. He is generally oriented to self, inconsistently oriented to place (hospital) but not situation (thinks he’s visiting someone), “grossly” oriented to time (year). He is disinhibited, unpredictable, and attention fluctuates wildly. As you see, he has an enclosure bed, which he does not resist or seem to mind. Attention span is <1 min for unstructured tasks but he can play board games (checkers, kings in corner) for several minutes at a time. He can talk a good game (orientation-wise) but his bluffing becomes evident after 5-10 minutes.

• He needs routines, structured activities, and interactional support/environmental modulation to allow increase participation.

Support = maximizing on-task participation by shifting task modalities. Don’t over do it though or the refractory period & behaviors are problematic.
A day in the life of a mid-late intervention

• Passive Orientation
• Routines – self-cares, activities, sleep
• Environmental modifications
• Scaffolding context – partner demands (and supports), task demands, altered physical environment (sounds, sights, smells, and such)
  • Adjust supports and demands to match their needs (Environmental Press)
• Increase participation – on-task behaviors, physical and cognitive endurance, eating and drinking intake
Steve’s story

• Profound TBI
• Severe physical impairments
• Almost NO prospective memory
• Functionally NO declarative learning capacity
• Challenging behaviors
Principles of Routines

• Capitalize on implicit learning paradigms
• Minimize consumption of working memory
• Conserve working memory
• Easier to piggy-back than start anew

Hoepner in Johnson eds., in press; Ylvisaker & Feeney, 2000; Ylvisaker & Feeney, 1998
Important Considerations for Partners

- Buy-in
- Attitudes
- What’s in it for them?
Tag-on to an existing routine. New routines take a substantial amount of time to develop. While there are no hard and fast timeframes identified throughout empirical research, popular press estimates place timeframe for learning a new routine between 21 and 40 plus days. Adding to an existing routine shortens this timeframe.

Avoid or limit direct, explicit teaching of routines. This is especially true for individuals who have severe impairments to new learning. Ylvisaker identified that explicit teaching can limit implicit learning. This truth is supported by evidence in spaced-retrieval research. Instead, just provide consistent repetition of routine learning within natural contexts.

Consistency. The more consistent, the more efficient and effective routines will be implemented. Consider use of external aids such as calendar apps, reminders, and the like on smart phones, iPods, iPads, and other tablets.

Train routines in their natural context. Whenever possible, implement routines in the environment where they will be conducted permanently. This includes physical environmental factors (e.g., physical space, time of day, conditions in that space) and partner-based environmental factors (e.g., the people who are likely to support or facilitate routines should be present, caregivers and/or family).
Modulating Environment

• Remember, performance environments are more complex
• Capacity environments lack incidental supports (including partners)

• Partner roles: modulate environment by reducing demands when the individual with TBI cannot
• Eventually, the person with TBI must modulate
• Payoff – success and partner reinforcement when supported

Togher, 2000; Hoepner, 2010
Addressing Personal Factors

Reducing Intrinsic Demands (e.g., feelings, perseverations) or Extrinsic (e.g., task complexity)

1. Download
2. Physically incompatible activity
3. Change the environment
“Downloading”

- Emptying mental space and feelings that consume working memory fuel
  - Journaling
  - Venting
- Download within physical tasks to make them more concrete – table-top approaches to simplifying tasks.

*Behaviors change despite awareness limits*

Knight et al., 2002; Medd & Tate, 2000; Ownsworth et al. 2000
A case for Table Top approaches

• Carl is a 52 year old man with a TBI who refused to tell his employer he had a head injury. Despite my recommendations, he returned to work with no disclosure. He had tinnitus and vertigo so bad that it became an occupational hazard at times. He installed high-tech audio systems. One day, while installing a new system in a vaulted ceiling of a church, he stepped laterally (into thin air) off of one of the top steps of a 20 foot ladder, forgetting that he was standing on a ladder. After recovering from his injuries, he says “I need a better way to handle this.” I thought he was going to say – let’s tell my boss but instead he and I worked together to devise a plan – Table top is the result.
Table Top Approaches

Hoepner, 2015 in Johnson, eds.
Physically Incompatible Activity

• This is key for addressing the emotional draining of working memory capacity.
• When an individual becomes anxious or emotionally charged, they will burn off working memory and have none left over to make good choices.
• Perseverative thoughts also exhaust working memory quickly.
• When an individual feels this coming on (discuss what it feels like) – they need to break to something different.
• It's also true when an individual is being overwhelmed by the complexities of the task.
• When they feel their wheels spinning and mind racing they need to switch to another activity.
Physically Incompatible Activity

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• When an individual becomes anxious or emotionally charged, they will burn off working memory and have none left over to make good choices.
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• It’s also true when an individual is being overwhelmed by the complexities of the task.
• When they feel their wheels spinning and mind racing they needs to switch to another activity.
Change the Environment

• Reduce demands in the current environment

    or

• Change to a different environment