Speech-Language Pathology Role Within an Integrated Brain Rehabilitation Clinic: Serving Individuals With TBI

Gina Mitchell, M.A, CCC/SLP

Tom Bergquist, Ph.D LP; Anne Moessner RN, ACNS
Mayo Clinic Hospitals
Rochester MN
Disclosure

• I have no **relevant financial relationships** in the products or services described, reviewed, evaluated or compared in this presentation.

• I am a salaried employee of Mayo Clinic Hospitals and work directly within the program presented today.
Learner outcomes

1. Identify the components of a Brain Rehabilitation Clinic specializing in traumatic brain injury, along with outcomes.
2. Discuss the benefits of team collaboration specific to the TBI population.
3. Discuss the role of the Speech-Language Pathologist for TBI related cognitive-communication residuals with a focus on commonly used assessment and treatment strategies
Mayo Clinic Hospitals – Rochester MN

- Level 1 Trauma Center: 53 Operating suites
- ~2,000 beds in two hospitals
- 34,000 staff (approximately 1,600+ MDs)
- 62,000 inpatients and 80,000 ER visits
- 3 Helicopters covering a 3 state region
- 80% of patients come from the region
- Over 1,000 TBI injuries/year through ER
ANNUAL NUMBER OF TBIs

FIGURE 1: Estimated Average Annual Number of Traumatic Brain Injury-Related Emergency Department Visits, Hospitalizations, and Deaths, United States, 2002–2006

52,000
Deaths

275,000
Hospitalizations

1,365,000
Emergency Department Visits

???
Receiving Other Medical Care or No Care*

An estimated 1.7 million TBIs occur in the United States annually.

Of the 1.7 million TBIs occurring each year in the United States, 80.7% were emergency department visits, 16.3% were hospitalizations, and 3.0% were deaths.

* Data for this category are not included in this report. See "Limitations" in Appendix B for more information.

Common neurobehavioral symptoms after TBI

- Cognitive fatigue
- Impaired attention
- Impaired learning and memory
- Impaired planning and problem solving
- Concrete thinking
- Reduced initiation
- Mental inflexibility
- Impulsivity
- Irritability
- Socially inappropriate behavior
- Impaired emotional regulation
- Impaired self-awareness
- **Cognitive communication deficits**
Brain Rehabilitation Clinic

- Cognitive Rehabilitation
- Speech and Language Therapy
- Neuromuscular Therapy

- Brain physiatrists/midlevel
- Neuropsychology and testing
- Brain Rehabilitation Nursing
- Vocational Coordinator
- Clinical Social Services

- Patient & Family Coping Skills Group
- Patient and Family Education
- Recreation Therapy

Secretarial/Appointment/Administrative Support

Brain Rehabilitation Research
Mayo Clinic’s TBI Model System Center
Fundamental features of Brain Rehab Clinic

- Integrated into hospital setting
- All disciplines present and available for weekly “rounds”
- Midlevel/RN case management
- Vocational counselor in the hospital
- Ready access to sub-specialists (Neurology, Psychiatry, Optometry, Vestibular PT, etc.)
- Data driven
- Return to work/independent living outcomes for mod-severe TBI consistently among the best in the nation
- 25+ year history of collaboration with community partners
Team Member Roles

- Pts Age 15+ (high school), all brain diagnoses AND their families etc..
- Physiatrist/Midlevel (symptom management, release to school-work-driving, education)
- Neuropsychology (evaluate cognition, mood, behavior, education)
- OT and/or Speech Language Pathologist (cognition, communication, education)
- Clinical Social Worker (adjustment, CD screen, resources, education)
- Vocational Coordinator (work, education)
- RN (phone follow up, education)
BRC clinical approach

• Educate re: common symptoms, recovery patterns
• Set expectations for recovery
• Reinforce gradual return to usual activities including school and work
• Reassure, acknowledge controversies
• Guidance regarding return to school, work, driving
• Avoid high risk activities until medically cleared
• Refer to other specialists as indicated
**WHO International Classification of Functioning, Disability and Health (ICF)**

**Body Functions** are physiological functions of body systems (including psychological functions).

**Body Structures** are anatomical parts of the body such as organs, limbs and their components.

**Impairments** are problems in body function or structure such as a significant deviation or loss.

**Activity** is the execution of a task or action by an individual.

**Participation** is involvement in a life situation.

**Activity Limitations** are difficulties an individual may have in executing activities.

**Participation Restrictions** are problems an individual may experience in involvement in life situations.

**Environmental Factors** make up the physical, social and attitudinal environment in which people live and conduct their lives.
Why BRC approach?


-“The need to bridge the various needs of our clients in more integrated treatments that mesh cognitive, emotional and motivational interventions”
Role of the SLP

• Part of an integral team of professionals
• Evaluate “whole person”
• Identify functional deficits impeding maximum success in return to work, family, school, life
• Provide cognitive communication rehabilitation
• Connect
Definition of Cognitive Rehabilitation

System of therapeutic activities, based on brain-behavior relationships, directed to achieve functional change by:

- Re-establishing or reinforcing previously learned patterns of behavior
- Establishing new patterns of cognitive activity through compensatory cognitive mechanisms
- Establishing new patterns of activity through external compensatory mechanisms
- Enabling persons to adapt to their cognitive disability to improve overall functioning
Commonly Used Assessments

- Informal language assessment at minimum as so many patients with TBI complain of “word finding difficulties”
- ASHA Functional Communication Measures
- FAVRES
- Cognitive Linguistic Quick Test
Checklists

• Cognitive Symptom Checklist (5 areas)
  1. Memory
  2. Visual Process
  3. Language
  4. Attention/Concentration
  5. Executive Functions

• Allows for discussion on day to day problems, what they feel to be priority
Commonly used strategies

Word finding strategy training

• Slow down
• Keep it simple
• Describe the word
• Use a different word
• Talk later when it comes to me
• Try to focus on the communication, NOT on choosing the perfect word
Commonly used strategies

Cognitive strategy training

• Take “brain breaks” throughout the day (work and weekends)
• Keep things in the same place
• Ask myself, "Did that go well? Why? Or why not?"
• Break tasks down into smaller steps and gradually increase time/complexity
• Try to avoid thinking in black and white.
Commonly used strategies and tools

• Plan ahead for interactions so I can spend more time in the role of the listener. List questions I want to ask people before I see them.

• Calendar acquisition

• Progressive cueing

• Videotaping, feedback giving

• Phones, tablets
APPOINTMENTS & SCHEDULED EVENTS

MEDS  

Meet with Gina  
St Mary's 3rd floor

TO BE DONE

Complete Grocery List

Call Mary 255-1112

NOTES

HyVee

Watch Project Runway
Putting evidence based reviews into clinical practice

If you get one thing out of this talk….this is the “thing”
Strategies for Families

- Consider having him take video of himself so he can watch it later to monitor behavior, speech, eye-contact.
- Apps on phones and tablets
- Cues both from you and from environment
- Help them identify when they need that brain break.
- Use the phone for planning for conversations and taking notes immediately after an interaction.
Your plan

Reality
Team communication

• Rounds
• Collaborative goal setting
• Shared documentation/treatment plan: Clinical Document Manager (CDM)
• Admission/discharge paper work responsibility of all
• What’s next? Transition planning…
• FCM’s for speech pathology patients
Brain Rehabilitation Clinic outcomes
Outcome Measures

- Participation Index from the Mayo-Portland Adaptability Index (M2PI)
- Patient Health Questionnaire (PHQ-9)
- Vocational Outcome Scale (VOS)
- Independent Living Scale (ILS)
- Quality of Life Scale
- Neuro
- behavioral Symptom Inventory
- ASHA Functional Communication Measures
## Demographics

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male 42</th>
<th>Female 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td>Single 26</td>
<td>Married 42</td>
</tr>
<tr>
<td>Employment</td>
<td>Employed 22</td>
<td>Unemployed 37</td>
</tr>
</tbody>
</table>

| Ethnicity           | Caucasian 75 | Asian 1 | Other ethnicity 2 |

- **Diagnoses**
  - Stroke 32
  - TBI 32
  - Other 14

- **Length of Stay (months)** mean 4.8, SD = 3.9
Vocational Outcome Scale: percentage of patients engaging in community based employment

- Admission: 13%
- Discharge: 45%
Independent Living Scale: Percentage of patients living independently

- Admission: 58%
- Discharge: 85%
Patient Health Questionnaire: Percentage of patients with elevated symptoms of depression (>=10)

<table>
<thead>
<tr>
<th>Level of Depression Severity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>minimal</td>
<td>1-4</td>
</tr>
<tr>
<td>mild</td>
<td>5-9</td>
</tr>
<tr>
<td>moderate</td>
<td>10-14</td>
</tr>
<tr>
<td>moderately severe</td>
<td>15-19</td>
</tr>
<tr>
<td>severe</td>
<td>20-27</td>
</tr>
</tbody>
</table>
Overall Summary

• While necessary, measures of impairment alone are *not sufficient* to account for level of functioning and treatment planning in persons with acquired brain injury.

• The ICF Model (or something like it) which incorporates measures of activity and participation as well as factors impacting each of these is more likely to give us information which is *necessary and sufficient* to accurately assess, effectively treat and to fully investigate persons with acquired brain injury.
Case study

- 19 year old
- MVA
- Aphasia and Cognitive deficits
- Minimal motor involvement
- 1 week acute care
- 2 weeks rehab
- Outpatient 3+months

- Return to college
- Open door policy
- Continued to see over 2 years
How are we moving to the demand?....

• Working with mild TBI and concussion in a specialized center (Sports Med)
• Moving away from all hospital based and getting into the community
• Exploring tele-health and therapy through technology to reach remote areas without experienced care available (CONNECT TRIAL)
• Using technology—apps, phones......
Take away points……..

- Tasks such as:
  - working on an Amazon purchase
  - Role playing social situations
  - Getting the menu for upcoming dinner to practice with first

- Giving them permission to give themselves time to heal

- Reminding them they indeed used strategies prior to this and it is not cheating to do so
Life can be and often is good even after brain injury
It’s about teamwork
It’s about family
It’s about networking

Evaluating what you’re doing …makes it better

In rehabilitation, one size does **not** fit all

With ongoing research, brain injury rehabilitation is continuously improving

Brain rehabilitation takes special people

OPEN DOOR POLICY.....people come back, life happens, refer, educate, intervene support
Resources


• Mateer CA¹, Sira CS, O'Connell ME *Putting Humpty Dumpty together again: the importance of integrating cognitive and emotional interventions*. *J Head Trauma Rehabil*. 2005 Jan-Feb;20(1):62-75.


• Mayo-Portland Adaptability Inventory -4. Lezak, M.D, PhD; Malec, J.F, PhD.

Resources


• Patient Health Questionnaire (PHQ-9) Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc. No permission required to reproduce, translate, display or distribute.

• Cicerone, KD. Neurobehavioral Symptom Inventory. J Head Tr Rehabil 1995; 10(3):1-17

Resources

• Center for Disease Control (cdc.gov/traumaticbraininjury)
• Brainline (brainline.org)
• Brain Injury Alliance (usbia.org)
• Brain Injury Association of America (biausa.org)
• Mayo Clinic TBI Model System (mayo.edu/TBI NDSC)
• Knowledge Translation Center (msktc.org)
• The Center for Outcome Measurement in Brain Injury (tbims.org/combi/)
Thank you!

Please feel free to email me questions etc…

• Mitchell.gina@mayo.edu