



Designing a Neurological Assessment and Intervention Guide for Students on Fieldwork

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CAPSTONE SITE OVERVIEW

North Mississippi Medical Center (NMMC) is located in Tupelo, Mississippi. Founded in 1937, the mission of the medical center is "to continuously improve the health of the people in [their] region." The vision is described as "What we want to be: The provider of the best patient- and family-centered care and health services in America." The top five values held by this facility are compassion, accountability, respect, excellence, and friendly smiles. The department of adult neurological rehabilitation's purpose is "to improve the level of functioning of patients who have suffered stroke, brain injury, spinal cord injury, or any other debilitating neurological disorder through a coordinated and integrated rehabilitation program," and offers an interdisciplinary team approach to meet goals. Goals of neurological rehabilitation are to facilitate individuals in regaining function in the areas of movement, communication, cognition, and vision/perception, with outpatient services focusing mainly on occupations including activities of daily living (ADLs), school/work, leisure, and community integration.

LITERATURE AND GUIDING THEORY

The *Top 10 Recommendations from the OT Practice Guidelines for Adults with Stroke* (AOTA, 2016) follows the *OT Practice Framework* by outlining the most effective treatments for each area of occupation based on moderate to strong evidence in clinical practice.

Areas of occupation to be addressed: Activities of Daily Living (ADLs), Leisure, Motor Skills and Participation, Cognition, and Mental Health.

Effective treatment strategies shown to improve Motor Skills and Participation:

- o Effective trunk strengthening exercise include incorporating postural strategies like weightbearing and weight shift into activities, performed standing or seated, depending on the individual (Gillen, 2018).
- o Evidence shows that gradual resistance training programs are beneficial for both upper extremity recovery as well as gait control (Bonini-Rocha et al., 2018; Corbetta, et al., 2015; Hurt et al., 2015; Miller et al. 2013). Motor deficits in these areas can be addressed following evaluation of trunk control.
- o Motor-based techniques through the use of cognitive strategies including mental practice, mirror therapy, and virtual reality are effective (AOTA, 2016). Mental practice involves mentally rehearsing specific movements and patterns without performing the actual movement physically. Learning is facilitated through neuroplasticity (Peters & Page, 2015; Thomas & Doherty, 2017).

The Occupational Performance Model

- Proposes that people fulfill their occupational performance roles by engaging in routines, tasks and activities, in the domains of self-maintenance, productivity, leisure and rest, while responding to internal and/or external demands of the environment. It assumes that engagement in occupations provides the sense of competence, autonomy, and meaning individuals (Chapparo & Ranka, 1997).

- These are disrupted following a neurological event such as stroke

Neurodevelopmental Theory (NDT)

- Berta and Karel Bohlsch expanded upon this theory to develop the Neurodevelopmental Treatment Approach (NDT) for individuals with neurological conditions, specifically, NDT is used to analyze and treat posture and movement impairments based on kinesiology and biomechanics. The following concepts are considered for intervention: planes of movement, alignment, range of motion, base of support, muscle strength, postural control, weight shifts, and mobility (Barthel, 2010).

- The Capstone Project includes explanation and supporting evidence of each of the above mentioned concepts and components.

NEEDS ASSESSMENT

PHASE I: Completed June 30, 2020 in summer Capstone course OT671

Semi Structured Interview with Capstone Mentor Hannah Cranfield, OTR/L, C/NDT via phone call and follow-up email exchange

- SWOT Analysis: Strengths, Weakness, Opportunities, Threats; Population Overview; Intervention Overview; Other General Needs
- Key Take-aways: Primary patient population: Stroke (CVA); Need to incorporate more Evidence-Based Practice

Initial Project Plan: analyze of patient data from the Bioness Integrated Therapy System (BITS) in order to determine the most effective programs on treatment and recovery of specific diagnoses/patient populations and introduce new literature/treatment techniques.

PHASE II: Completed following arrival to site on February 15, 2021

- Informal process of investigation of needs through:
 - Observation; Conversation with members of therapy team; Meetings with Capstone mentor; Meetings with Capstone advisor
- Key Take-aways: Constant flow of students through NMMC IRF; Need for student education resources

New Direction: Create a guide to assessment and intervention of neurologically impaired patients through an NDT frame of reference for fieldwork students

PROJECT DEVELOPMENT and DISSEMINATION

I arrived to NMMC IRF in Tupelo in February and was properly oriented to the facility by my mentor and the fieldwork student coordinator. My mentor and I agreed upon a schedule that allowed me one day per week off-site dedicated to the project as all of my on-site time would be needed for treatment planning, implementation, and documentation. Over the first few weeks I collected and analyzed patient data from the BITS and hospital documentation system all while gradually building up my treatment caseload. After three weeks of data analysis, Hannah and I determined that the end result of this project while interesting and informative, would not best serve the current needs of the site.

The idea for a student guide came to light as the need for fieldwork student education at the facility was uncovered through the Phase II Needs Assessment. After consulting with Dr. Giroux, the decision was made to instead create a guide that fieldwork students can reference for assessment and treatment of neurologically impaired patients through an NDT frame of reference. My mentor and I collaborated to determine the sections of the guide and what content should be included.

Over the remaining weeks of the Capstone Experience, I worked my way to a full caseload of patients and incorporated the knowledge gained through hands-on practice into the treatment guide. I dedicated one off-site day per week to project development. Hannah allowed me to utilize the resources from her NDT certification course to supplement my research.

The finalized project contains the following six sections:

Guide to Documentation	Introduction to documentation system and samples Includes other helpful handouts
Student "Cheat Sheets"	Quick references useful for assessment, intervention, activity modification, and documentation
Transfers and Handling	Step by step instruction for transfers with varying levels of assistance
NDT Guide to Assessment and Treatment	NDT based assessment and treatment techniques divided by primary cause of impairment
Treatment Planning and Resources	Additional resources and supportive evidence for recommended treatment techniques
Bioness BITS	Clinician's Guide and initial patient data analysis

I officially completed my project during the twelfth week of the Capstone Experience. I submitted it to my on-site mentor for approval before dissemination to the therapy department.

On Wednesday, May 12, during the lunch hour, I gave a 15 minute socially distanced presentation to members of the rehab therapy staff and fieldwork students. I delivered a concise yet informative synopsis of the guide in its entirety so that the therapists would understand its contents and recommend it to their students in the future. Each therapist was seated at a computer and able to follow along through the digital copy of my project. The OT fieldwork student coordinator informed the department that the guide will be included with orientation documents in the initial email sent to incoming students. After the presentation, time was allowed for all questions to be asked and answered.

PROJECT GOALS / OBJECTIVES

1. Student will demonstrate competence using selected and appropriate NDT skills by the end of 12 weeks.

- ✓ Student will observe therapist's use and perform hands-on practice of NDT treatment techniques on appropriate patient population to promote further learning within two weeks.
- ✓ Student will design a specialized intervention plan for a neurologically impaired patient incorporating NDT principles and techniques within 7 weeks (midterm).

2. Student will create a resource binder for incoming students as a general guide to fieldwork and treatment of neurologically impaired patients by the end of 14 weeks.

- ✓ Student will take the necessary steps to obtain existing patient data while maintaining appropriate patient confidentiality within two weeks.
- ✓ Student will utilize "off-site time" to research NDT assessment and intervention techniques as well as evidence-based and best practice articles one day per week.

3. Student will allocate a general summary of the completed project to therapy staff so that they may recommend it to students in the future by the end of 14 weeks.

- ✓ Student will create a digital copy of the binder and all contents by the end of 12 weeks.
- ✓ Student will schedule a presentation time to fit the schedules of each individual who would benefit from attending one week in advance.

PROJECT EVALUATION PLAN

- ✓ Create a Student Satisfaction Survey

- o To be completed by fieldwork students at midterm and final points of FW experience
- o To evaluate the impact of the project on the students' transition to independent treatment planning and implementation during their fieldwork experience
- o Allows for suggestions to further improve to the project, possibly by a future Capstone student
- o Surveys will be administered and collected by the on-site clinical student coordinator

Student Satisfaction Survey

This survey is to be completed by Level II Fieldwork Students at both midterm and final to assess confidence of the Neurological Assessment and Intervention Guide for Students on Fieldwork 2021 Capstone Student Project. This survey can also be completed by newly hired therapists (new graduates or therapists with little experience treating neurologically impaired patients) on the guide would be a useful resource during the orientation process to the facility.

Please respond to the following questions and return to Kim Hammond, OTR/L, C/CCO.

1. How helpful was this guide to the orientation process in this facility during your fieldwork experience? (circle one)

Very Helpful	Somewhat Helpful	Not Very Helpful	I Didn't Use It

2. How helpful was this guide during the transition to independent treatment planning and implementation during your fieldwork experience? (circle one)

Very Helpful	Somewhat Helpful	Not Very Helpful	I Didn't Use It

3. Which sections did you find the most useful? (select one or multiple)

a. Guide to Documentation
b. Student "Cheat Sheets"
c. Transfers and Handling
d. NDT Guide to Assessment and Treatment
e. Treatment Planning and Resources
f. Bioness BITS

4. Which section did you find the least useful? (select one or multiple)

a. Guide to Documentation
b. Student "Cheat Sheets"
c. Transfers and Handling
d. NDT Guide to Assessment and Treatment
e. Treatment Planning and Resources
f. Bioness BITS

PROJECT SUMMARY and FUTURE RECOMMENDATIONS

The guide I created will benefit future fieldwork students during the orientation process and transition to independent evaluation, treatment planning, and documentation.

It will benefit the site by easing the orientation process for supervising therapist on the front end of fieldwork when students required the most assistance; and even serve as a resource for newly hired therapists.

Through both the Capstone Experience and Project, I deepened my knowledge of NDT treatment techniques and application in clinical practice. Additionally, I improved my interprofessional communications skills through collaboration with advisors and other member of the therapy staff.

I will reference this project in my own career and will potentially recommend to my own fieldwork students in the future.

Special thanks to Hannah Cranfield, the NMMC Inpatient Rehab therapy department, Dr. Peter Giroux, and Dr. Penny Rogers for guidance and support throughout the Capstone Experience.