**Title and Focus of Activity**: Intervention Case Study – Integrating Course Concepts and Evidence-Based Practice *Plan of Care*

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**Course Information:** PT Management of Neuromuscular Conditions I; 3 credits; Year two, fall semester. Occurs after Neuroscience and another course covering motor learning and basic motor control concepts. Occurs concurrently with PT Management of Neuromuscular Conditions I Lab. *This assignment follows the Examination Case Study – Selection of Outcome Measures assignment.*

**Learning Activity Description:** Context: PT Management of Neuromuscular Conditions I introduces students to concepts underlying the physical therapy management of individuals with movement dysfunction secondary to acquired neuromuscular deficits (stroke, multiple sclerosis, Parkinson’s, and brain injury). The initial segment of this course covers the examination of patients. Following a lecture on selecting outcome measures, students work in small groups to complete the Examination Case Study – Outcome Measure Selection assignment. To complete the Intervention assignment, students will work in the teams (of 6 students) previously formed for the Examination Case Study. Students are provided with the results from the PT examination, including scores on a few outcome measures, for each patient (see PDF files entitled *Intervention Case Studies, 1 -- 4*).

Instructions to Students: Student groups will collaboratively complete this assignment which includes:

1. Writing two long-term (i.e., discharge) goals/outcomes for the patient
2. Conducting a literature review to explore interventions that could help in achieving each goal
3. Developing a comprehensive and logically organized plan of care, including writing rationale statements to justify clinical decisions
4. Answering questions regarding the pharmacokinetics and pharmacodynamics for one medication used for the patient
5. Identifying components of the plan of care that can be delegated to a PT Assistant
6. Completing a self-assessment and peer-assessments

A written report will be submitted for a grade and in class discussions will be held to share information and compare/contrast interventions for the patient cases.

Selected online resources

* PT Now: <http://www.ptnow.org/Default.aspx>
* Stroke Engine: <http://strokengine.ca>
* Evidence Based Review of Stroke Research (EBRSR): <http://www.ebrsr.com>
* National Guideline Clearinghouse: <http://www.guideline.gov>
* Pharmacology websites:
  + <http://www.druglib.com>
  + <http://www.rxlist.com/script/main/hp.asp>

# **Case Study Questions/Criteria (see rubric, Appendix B):**

1. Select two important long-term/discharge goals. The two goals must be focused on activity and/or participation, and distinct from one another (i.e., they cannot both pertain to improving balance). (Ungraded, but students will receive feedback on the goal).
2. For each goal, develop an intervention plan that is appropriate for your patient at the current point in time. The plan must include a *minimum* of 3 specific techniques and/or activities (i.e., procedural interventions) for each goal. It is appropriate to integrate interventions related to communication, collaboration, and patient-related instruction. The intervention plan can incorporate use of equipment available in a typical rehabilitation setting (e.g. as found in SC 107; also may include body-weight support treadmill. Do not include use of equipment that is experimental and not commonly found in clinics (if in doubt, discuss with the course instructor). (40 points total)
3. Your patient is taking a medication (listed below). Using one or both of the pharmacology websites noted above, identify the following for the medication: (5 points)

* Indication for use
* Method of administration (e.g., oral, IM injection)
* Dosage
* Common side effects and a brief explanation as to how these might impact the patient’s participation in PT
* The patient’s medications are:
  + Maybelline: Activase (tPA administered at stroke onset)
  + Carlos: Baclofen
  + Deb:
    - Avonex
    - Ampyra
  + William: Sinemet

1. Identify those aspects of your treatment plan that are appropriate for delegation to a Physical Therapist Assistant, and explain the factors you considered when making these decisions. (5 points)
2. Self & Peer Assessment: The form will be distributed in hard copy in class. Students will submit the completed form back to the instructor. (Appendix A)

**Specific Guidelines Regarding the Plan of Care:**

The plan must be detailed, including a description of *exactly* what interventions are planned and *how* these will be administered. Factors to consider and discuss include, *but are not limited to*:

* Patient positioning
* Use of feedback (e.g., manual, verbal, visual)
* The structure of the practice session (e.g., whole versus part practice)
* Exercise or activity intensity (e.g., speed, duration/distance), etc…

In addition to interventions specific to patients with neurologic conditions, it may be appropriate to incorporate other interventions, including *but not limited to:*

* Environmental modifications
* Pulmonary care
* General exercise (stretching, strengthening, aerobic, etc...), including as part of a home exercise program
* Referral to, and/or consultation and collaboration with other health care professionals

The intervention program may include exercises or activities done in the clinic or via a home program. Please specify whether your activities are clinic-based, homework, or home-based.

In addition, the rationale supporting each intervention must be thoroughly explained.

The intervention plan for each goal must meet the following requirements:

* The interventions must be appropriate for designated problem, presented in a logical and sequential order, written in a manner to promote replication, and must promote attainment of the stated outcome. (20 points.)
* An appropriate rationale must be stated for each intervention. (20 points)
  + A through description of how/why the selected intervention will enhance the attainment of the outcome. It is expected that students will use original research reports to support rationale, but use of theory and sound clinical reasoning is also acceptable. Citations are required and must follow AMA format.
  + Students must attach electronic copies of all articles cited when submitting their report.

*Formatting the Plan of Care*

1. State Goal # 1
   1. Rx. 1
      1. Rationale:
   2. Rx. 2
      1. Rationale:
   3. Rx. 3
      1. Rationale:

Note: If the plan of care includes more than three interventions, continue to use the same formatting noted above to describe the remaining components of the plan.

1. State Goal # 2 (as above)

**General Guidelines:**

* Students may make assumptions to help in answering the case study questions; when doing so, students must clearly state the given assumptions in the written report; assumptions must be consistent with information provided in the case
* Students must use the scientific literature (e.g. peer-reviewed journal articles, including original research reports, systematic reviews, etc…) to complete the assignment. The use of texts and other sources (e.g., internet) is also permitted, but cannot be the only sources used; all sources must be appropriately cited using AMA format (used in *Physical Therapy)*. An electronic copy of all articles cited must be included as part of the assignment submission.
* This is intended to be the work of a single team. Student teams are not allowed to collaborate on the writing, preparation, and presentation of the case report; doing so is considered academic dishonesty.
* All members of the given team are expected to participate in answering each case study question. This is particularly important given the self & peer assessment form criteria. Avoid a divide and conquer approach.
* The case report must be type-written and complete and presented in a neat and orderly fashion; content must be organized in a logical manner to facilitate the reader’s understanding; the report must be grammatically correct; case reports that do not meet these criteria may be subject to point deductions.
* The case report is due at the time of the in class discussion.

Time for student to complete the activity: 1. preparation for activity outside of/before class: Students have approximately 6 weeks to complete the assignment. 2. class time completion of the activity: None -- students are expected to complete this outside of class.

Readings/other preparatory materials: Readings for the Intervention Case Study are selected by the student groups and relate to the plan of care they are developing for their assigned patient. Prior to this assignment, students are provided with a lecture describing the theory, principles, and scientific evidence of different therapeutic approaches for patients with neurologic conditions (i.e. task-oriented, neuro-therapeutic facilitation). They also engage in paired, problem-based, lectures and labs to formulate and implement intervention plans to improve bed mobility, transfers, gait, and upper extremity function for patients with central nervous system problems.

Learning Objectives: 1. Plan an evidence-based physical therapy intervention program for an adult patient with a neurologic condition:

1. Develop a PT plan of care for the patient, integrating concepts discussed in class with available scientific evidence
2. Perform a literature search to identify articles relevant to the patient case
3. Gather, read, and interpret the selected articles.
4. Demonstrate the ability to identify the best evidence available and apply it to the patient case 2. Examine the pharmacokinetics and pharmacodynamics of commonly used medications for patients with neurologic disorders 3. Make appropriate decisions regarding delegation of tasks to a Physical Therapist Assistant 4. Provide constructive feedback to peers and assess one’s own contributions to the team and project 5. Demonstrate professional behaviors when working in a team and when receiving constructive feedback from peers and faculty

Methods of evaluation of student learning: See Appendix A and B

**Appendix A Self & Peer Assessment Form**

Purpose: The purpose of this assessment is to candidly report your perceptions of the degree of participation of each of your group members, including yourself. Any group member’s final score for the project (including your own) may be adjusted based on group member assessment.

Criteria: Each student will assess his/her own performance and that of each group members based on their degree of participation, effectiveness of communication and collaboration, competent completion of tasks assigned, and timeliness.

Scoring: Consider the contributions of *all group members (including you) on both the Examination & Intervention Case Study Assignments.* Each person’s contributions to the project will be evaluated on a 0 – 100% scale. Thus, each person will receive one score from each member of the group that is somewhere between 0 – 100% points. For example, you might grade Megan at 98%; Taylor at 96%; Robin at 85%; Pat at 75%, and yourself at 98%. Each student’s percentage scores will be averaged for one score on a 0 – 100% scale. Each student’s total score for the project will be adjusted in accordance with the scale noted below:

Directions:

1. Print the names of your group members (including your own name) in the “name” column in the table below (alphabetical order).
2. Assess each of your group members *overall contributions to the project* on a 0 – 100% scale. Please consider the individual’s inter-personal communication, professional behavior, research skills, clinical decision-making abilities, and writing skills when determining his/her grade.
3. List each individual’s strengths and areas needing improvement on the form as well.
4. Return this form to the instructor in hard copy.

Average Group Score Adjustment to Individual’s Total Project Score

95-100% 🡪 No change to final project score

90-94% 🡪 -2 points to final project score

85-89% 🡪 -4 points to final project score

80-84% 🡪 -6 points to final project score

70-80% 🡪 -8 points to final project score

0-69% 🡪 -10 points to final project score

Self and Peer Assessment Form

Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
| **Name**  PLEASE PRINT NAMES OF  ALL GROUP MEMBERS  **(Alphabetical order, please)** | Percentage Score  (0 – 100% scale for each group member) | Strengths | Areas Needing Improvement |
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**Appendix B Grading Rubric**

| Question | Criteria/Weight\* | Score | Comments |
| --- | --- | --- | --- |
| **Plan of Care for Goal #1** | | | |
| 1. Goal #1 | Ungraded | NA |  |
| 2. Plan of care for goal #1 | Plan of care is described that meets following criteria – 10   * Appropriate given patient's abilities * Helpful in attaining stated goal * Logically and sequentially organized * Descriptive: clear; includes intensity, frequency, duration   Plan of care meets three of above criteria - 7  Plan of care meets two of above criteria – 4  Plan of care meets one of above criteria - 2  Plan of care does not meet any of above criteria - 0 |  |  |
| 3. Rationale for plan of care #1 | A rationale statement follows each intervention and meets the following criteria – 10   * Appropriate scientific evidence and theory is effectively used * The rationale relates clearly to the patient and his/her needs and abilities * The rationale relates clearly to the goal   Rationale meets two of above criteria - 6  Plan of care meets one of above criteria – 3  Rationale does not meet any of above criteria - 0  Note: All references must be cited in AMA format and students must provide the instructor with electronic copies of all articles cited. Points deducted as appropriate. |  |  |
| **Plan of Care for Goal #2** | | | |
| 4. Goal #2 | Ungraded |  |  |
| 5. Plan of care for goal #2 | Plan of care is described that meets following criteria – 10   * Appropriate given patient's abilities * Helpful in attaining stated goal * Logically and sequentially organized * Descriptive: clear; includes intensity, frequency, duration   Plan of care meets three of above criteria - 7  Plan of care meets two of above criteria – 4  Plan of care meets one of above criteria - 2  Plan of care does not meet any of above criteria - 0 |  |  |
| 6. Rationale for plan of care #2 | A rationale statement follows each intervention and meets the following criteria – 10   * Appropriate scientific evidence and theory is effectively used * The rationale relates clearly to the patient and his/her needs and abilities * The rationale relates clearly to the goal   Rationale meets two of above criteria - 6  Plan of care meets one of above criteria – 3  Rationale does not meet any of above criteria - 0  Note: All references must be cited in AMA format and students must provide the instructor with electronic copies of all articles cited. Points deducted as appropriate. |  |  |
| 4. Pharmacology | 1. Indication for use – 1  Correctly stated – 1  Incorrectly stated or missing – 0  2. Method of administration – 1  Correctly stated – 1  Incorrectly stated or missing – 0  3. Dosage – 1  Correctly stated – 1  Incorrectly stated or missing – 0  4. Side effects noted and impact on PT explained – 2  One of the two criteria met – 1  Incorrectly stated or missing – 0 |  |  |
| 5. Delegation to PTA | A description of tasks which may be delegated to the PTA is provided and sound discussion of factors important in decision making is provided. – 5  One of the above criteria is met, but not both – 2.5  Neither of the above criteria are met - 0 |  |  |
| 6. Self- and Peer-Assessments | Points may be deducted per policy (below).  - 0 points deducted  - 2 " "  - 4 " "  - 6 " "  - 8 " "  - 10 " " |  |  |

\*Partial credit (i.e., scores in-between two ratings) may be issued.