Compendium of Resources for Neurologic Physical Therapy Residency Programs

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# Introduction

The APTA Neurology Section 2012-2016 Strategic Plan included an objective to increase the number of neurologic residency programs accredited by the American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE). A survey of established and developing residency program directors suggested a need for financial support as well as resources that would assist with new program development. In 2010 the Section began a grant program for new programs. In 2011, the Neurology Section formed the Neurologic Residency Curriculum Task Force (NRCTF) to develop curricular resources to help in neurologic residency program development. In 2012, the Section published the Neurologic Physical Therapy Curriculum, based on the Phase 1 work of the NRCTF.

This *Compendium of Instructional Resources for Neurologic Physical Therapy Residency Programs* represented Phase 2 of Neurology Section support for newly developed residency programs.

In 2021, the Residency and Fellowship Special Interest Group of the Academy of Neurologic Physical Therapy (ANPT) took up the task to update this Compendium.

The *Compendium* provides:

1. Key processes and timelines for navigating the accreditation process
2. Suggestions on writing important core program documents such as a program mission, goals, outcomes and key indicators
3. Active learning experiences for residents, both didactic and clinical
4. Sample rubrics for assessing resident competency (e.g., test item writing, clinical performance evaluation) and program outcomes
5. Mentoring development/evaluation materials

We acknowledge that most Residency Program Directors will have strengths in some areas, and will benefit from guidance in others. The purpose of the *Compendium* is to provide a broad array of materials from which to select, depending upon a particular program’s own needs and resources.

All materials may be used/adapted freely, though it is expected that credit to the original contributor will be so noted. Finally, these resources are not meant to be exhaustive, however, they do represent areas that the SIG felt would be most helpful to a new Program Director. In addition, it is highly recommended that developing programs review the ABPTRFE’s [Clinical Program Quality Standards](https://abptrfe.apta.org/for-programs/clinical-programs/quality-standards-clinical) and the [Processes and Procedures](https://abptrfe.apta.org/globalassets/abptrfe/for-programs/abptrfe-processes-and-procedures-05242021.pdf) documents located under the [Program Development Resources](https://abptrfe.apta.org/for-programs/clinical-programs) area of ABPTRFE website to ensure that they are compliant with ABPTRFE standards for accredited residency/fellowship programs. There are also many other resources available linked below that developing programs may find beneficial.

* ABPTRFE: Information for Developing Residency and Fellowship Programs:<https://abptrfe.apta.org/for-programs/information-for-developing-residency-fellowship-programs>
* ABPTRFE: Guidelines, Templates and Resources:<https://abptrfe.apta.org/for-programs/clinical-programs>
* APTA’s Academy of Education Residency and Fellowship Special Interests Group Think Tank Compendium:<https://aptaeducation.org/special-interest-group/RFESIG/think-tank-compendium.cfm>
* [ABPTRFE Mentoring Resource Manual](https://abptrfe.apta.org/globalassets/abptrfe/for-programs/clinical-programs/abptrfe-mentoring-resource-manual.pdf) (updated 2019)
* [ABPTRFE Core Competencies of a Physical Therapy Resident](https://abptrfe.apta.org/globalassets/abptrfe/for-programs/clinical-programs/abptrfe-core-competencies-physical-therapist-resident.pdf) (2020)
* [American Board of Physical Therapy Residency and Fellowship Education: Candidacy Workshop](https://learningcenter.apta.org/student/MyCourse.aspx?attempt=0&id=419cecbe-8d2f-4c08-a785-9d176170abf4&categoryid=&programid=dcca7f06-4cd9-4530-b9d3-4ef7d2717b5d&returnUrl=ContentPage.aspx?PageID=5d7e73a6-cfc3-d187-d8eb-fbf536c4a04f)- APTA Learning Center

# Timelines and processes for Developing Program, Candidacy, and Accreditation

## Developing Program

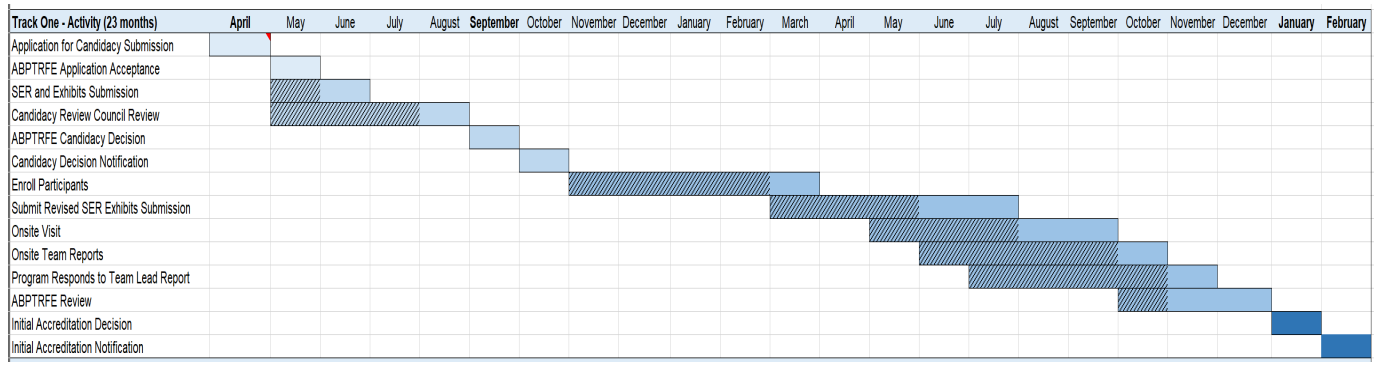
Deciding to start a residency program and apply for accreditation by the ABPTRFE requires time, resources and a commitment of the organization and designated residency director/coordinator. ABPTRFE’s Processes and Procedures Guideline (<https://abptrfe.apta.org/for-programs/process-and-procedures>) clearly explains the requirements and timelines from idea to accreditation and re-accreditation. We will be summarizing certain aspects of this document below, however a program must reference the Processes and Procedures document for further detail and for updates and revisions as that document updates over time.

See page 47 (section 2.0) of the Processes and Procedures Guideline for the full timelines and discussion of the three accreditation tracks. Noted below is the schematic timeline of each track.

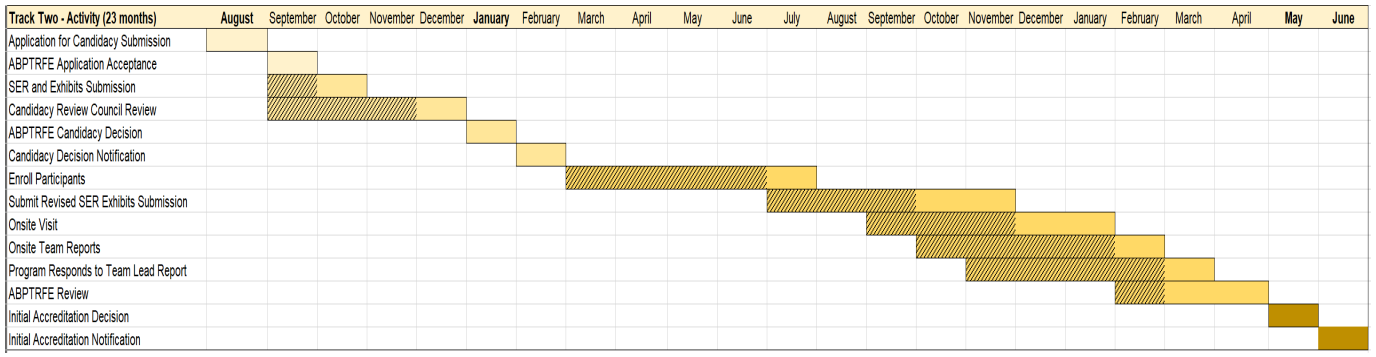
Note that ABPTRFE recommends starting the Self Evaluation Report (SER) and exhibits 9-12 months prior to submission of the application for candidacy (noted as the first month of the tracks below).

PRO TIP: Often programs select which track fits their program best based upon the start date that matches their plan and then back track to determine the date to submit their initial candidacy application. Start date may coordinate with an academic calendar, didactics being utilized, local university calendar anticipated to be feeder to program, other institutional reasons or any reason a program sees fit. 

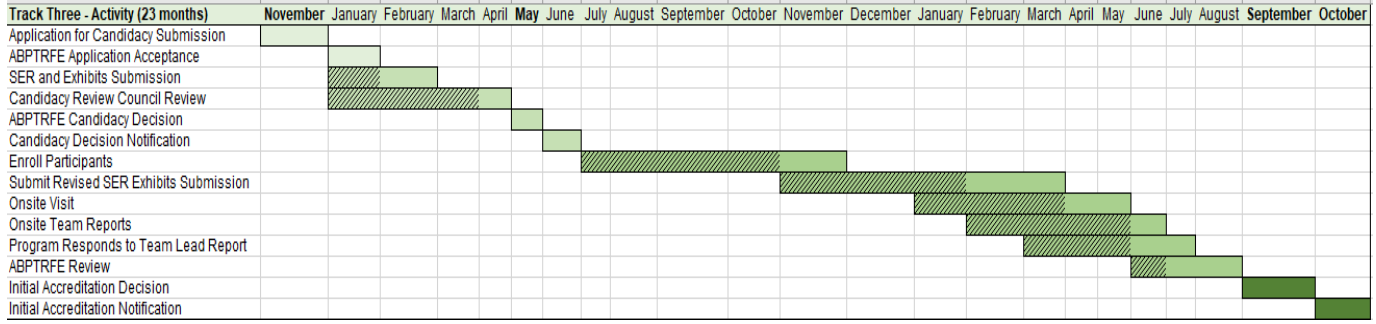
Track 1



Track 2



Track 3



See page 57 (section 3.0) of the Processes and Procedures Guideline for full description of fees associated with the accreditation process (candidacy application fee, site visit fee, annual fee).

As noted above, an organization should start the residency development and accreditation process 9-12 months prior to the desired timeline of submission of the application for candidacy.

During this time the program should review the Processes and Procedures Guidelines, Quality Standards, Description of Residency Practice or Description of Fellowship Practice or Practice Analysis, and application templates. All of these documents can be found at<https://abptrfe.apta.org/for-programs/clinical-programs>

In addition, the organization should start to identify the key resources available to support the residency, residents, and faculty members and initiate curriculum development.



PRO TIP: Reach out to resfel@apta.org or call 703-706-3152 to initiate the process of becoming a developing program and talk through which track is best for your program.

## 

## Application for Candidacy

The program submits the application for candidacy, application fee and the ABPTRFE Candidacy Workshop completion certificate on the scheduled timeline through the Accreditation Management System ([https://accreditation.abptrfe.org/#/auth/login](https://accreditation.abptrfe.org/%2523/auth/login)).

ABPTRFE will respond back with application acceptance. The program will then submit the SER and exhibits about 2 months after the application for candidacy.

The program cannot enroll participants prior to being granted candidacy status (note this is about 8 months after application for candidacy) or make any substantive changes during this time.

A program that receives a denial of candidacy, can resubmit needed updates/revisions at future tracks.

The program will receive a letter and the ABPTRFE accreditation report rubric once a decision is made.

Once a program receives approval for candidacy, the program has 23 months to achieve initial accreditation, or the candidacy status will expire 18 months from the date granted.

Programs must use the following disclosures on website/marketing materials

“ABPTRFE has granted (Name of Program) candidacy status. Candidacy status signifies satisfactory progress toward accreditation. Achieving candidacy status is not an indication that ABPTRFE will grant initial accreditation. Participants who graduate from a program in candidacy status are not deemed to have completed an accredited program.”

The program may enroll participants after it receives notification of candidacy status and the first cohort of residents must start within 5 months.

Once the first residents start the program, the program must notify ABPTRFE of the start within 2 weeks and provide the start date and anticipated graduation date.

## 

## Site Visit

The site visit will be scheduled 6-10 months after the start of the first cohort of residents.

The program will pay the site visit fee, and submit revised SER/exhibits 5 weeks prior to the site visit.

The site visit provides the opportunity for a program to elaborate on information from the SER and the exhibits. The site visit will be scheduled a minimum of 2 days as a 3 person (including the following team members: team lead, program administration/outcomes, practice area expert). The site visit will visit a maximum of 5 of the programs sites.



PRO TIP: The site visit is an opportunity for the site visit team to triangulate and clarify information. The program will not receive feedback from the site visit team regarding their evaluation at the end of the site visit.

The program will receive the accreditation report rubric and provide any clarifying information, which will be reviewed by the ABPTRFE who will make a decision about accreditation status.

See Processes and Procedures 6.4 for details regarding appeal of decisions.

Once accredited, the program must use the following authorized statement on website/marketing materials

“(Name of Program) is accredited by the American Board of Physical Therapy Residency and Fellowship Education as a postprofessional (residency/fellowship) program for physical therapists in (defined area of practice).”

## 

## Accredited Program

After receiving accreditation status, the program will submit an Annual Continuous Improvement Report (ACIR) and fee in January on an annual basis. See Processes and Procedures 10.1 for more information.

A program must submit a substantive change form for any of the following substantive changes (more information found in Processes and Procedures 13.0)

* + A change to the program’s mission;
  + A change in organizational ownership of the program;
  + A change of leadership (e.g., changes in program director or program coordinator);
    - ABPTRFE must be notified within 30 days of the change and new director must meet the criteria
  + Change in curriculum content that represents a significant departure from existing offerings of the program;
  + A change in method of program delivery (e.g., changes to in-person versus distance learning or changes from full-time to part-time offering);
  + A substantial increase or decrease in total program hours;
  + An increase in the number of planned participant positions; or
  + An increase in participant practice sites.

## Renewal of Accreditation

See Processes and Procedures 4.0 for details regarding renewal of accreditation. A program may have a virtual site visit if they are in good standing with ABPTRFE with no negative accreditation actions, and have demonstrated positive outcomes throughout three annual reporting cycles leading up to the renewal. The site visit fees are the same for virtual and in person.

# Policies and Procedures

Developing specific retention, leave of absence, remediation and termination policies with clear timelines helps to provide the programs a framework to address problems before they become unmanageable. This helps to protect the participants and the program.

The following information over retention, remediation, termination and leave policies are taken from the ABPTRFE’s Quality Standards 3.3 (<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/abptrfe-part-iii-clinical-quality-standards.pdf>)

## Retention, Remediation and Termination Policies

* 3.3.1 Retention Policy: The program implements appropriate retention policies and procedures including academic and clinical requirements the participant must fulfill to maintain active status through graduation.

Consider the various requirements that the participant must complete in order to maintain their status as an active participant in the program. Aspects that can be considered are listed below, but are unique to each program and this is not an inclusive or prescriptive list.

* Completion of minimum number of clinical, mentored and education hours
* Completion and passing (include a numeric passing score) of all academic requirements
* Achievement of passing clinical competence (include score or minimum requirement)
* Completion and passing (include a numeric passing score) of presentations, journal clubs or other teaching experiences
* Minimum level of organizational achievement including clinical performance, patient safety, time and attendance, professional behavior

The ideal is to be comprehensive without being too restrictive on your program. You may find these requirements spelled out in the enrollment agreement/contract.



PRO TIP: operationally define scoring rubrics as able for things such as live patient exams and assessments

If a participant is failing to achieve the minimum standards set as part of the retention policy, then the remediation policy will be activated.

3.3.2 Remediation Policy: The program implements appropriate remediation policies and procedures including criteria for program dismissal if remediation efforts are unsuccessful. The program establishes methods and timelines to identify and remedy unsatisfactory clinical or academic performance. The remediation policies are distributed to and acknowledged in writing by the participant. The program documents and implements any necessary adjustments to the participant’s customized learning plans, including remedial action(s).

The goal of a successful remediation policy is to bring the participant back up to the level of successful performance through the use of mentoring, additional clinical experiences and training, self-study and feedback. If a participant fails to meet the minimum retention policy after remediation, this would lead to the participant being dismissed or terminated from the program and potentially the organization.

A comprehensive remediation policy identifies the area of deficiency, the residency faculty involved as part of the remediation and continued assessment, objective and measurable goals for performance change, specific consequences as well as the specified timeline to complete the remediation.

Consider how long a remediation plan is allowed to occur and the impact of completion of the program and graduation date.

If the participant fails an academic course that is only offered once during a residency year, what will be the impact on the resident’s ability to remediate this content. Can the resident participate in the course the following year with the next cohort? Will the resident be allowed to continue with the clinical work?

What is the maximum amount of time a participant has in order to remediate and complete the requirements for graduation from the program?

Is there a maximum number of tries to successfully pass a written exam or live patient exam?



PRO TIP: Ensure your administration and budget support your remediation allowances on time frame

If the resident fails to successfully complete remediation, the participant will be terminated from the program. The program also has to determine if termination from the program also includes termination from employment at the organization. This can be a program specific decision as the resident could be meeting standards as an employee, but not meeting residency standards. However, a termination may be from both the program and the organization if serious issues exist that include unremediated concerns from an employee standpoint.

3.3.3 Termination Policy: The program implements an appropriate termination policy and procedures including termination of the participant who becomes ineligible to practice due to loss of license or for identified clinical or academic reasons (e.g., consistent underperformance or inability to successfully remediate participant). The program establishes procedures and timelines followed for termination. The program identifies the employment status of the participant should program termination occur.

The program develops a method for the participant to appeal the decision including the process to submit the appeal, the participants involved with the appeal and the timelines.

3.3.4 Grievance Policy: The program implements an equitable grievance policy including procedures for appeal that ensures due process for the participant, faculty, and staff. Additionally, the program publishes ABPTRFE’s grievance policy that a participant can follow if issues are not resolved at the program level.

An example of a program’s evaluation, remediation and termination policy is located in the Evaluation of Outcomes section

## Leave of Absence Policy

A program also needs to develop a leave policy to address situations in which a participant may have to take an extended leave of absence and should determine how this situation could impact the participant’s ability to return to the program and graduate. This includes a maximum amount of time the participant could have extended leave and still return to the same residency year and graduate or at what point they would need to return during a future residency year. A program should determine the impact on admissions of that next residency.

3.3.5 Leave Policy: The program establishes appropriate professional, family, and sick leave policies including how these leaves could impact the participant’s ability to complete the program.

# Guidelines for Writing a Residency Mission Statement, Goals and Outcomes

When developing, a new program working through the creation of these core documents should occur at the outset as it can be used to guide the development team throughout the entire process and refocus the group if the minutia becomes overwhelming.

## Mission Statement

A program’s mission is a formally adopted statement of the fundamental reasons for existence, shared purposes, and values including the defined area of practice and participant population served. The mission guides growth, continuous improvement, and strategic initiatives1.

The Residency/Fellowship program’s mission communicates the advancing education offered to increase a physical therapist’s efficiency and improve outcomes. The mission identifies the program’s defined area of practice and promotes excellence in the field of physical therapy education by graduating competent specialty practitioners2.

The mission statement should align with the sponsoring organization’s mission statement.

*Example:**The Program’s mission is “to prepare physical therapists with advanced knowledge and skills in neurologic physical therapy integrated with a foundation in the basic and applied sciences and scientific inquiry.”*

Additional resources for mission statement development and requirements can be found at

1. Exhibit 2 guidance instructions:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/non-clinical-programs/abptrfe-exhibit-02-guidance-instructions-example.pdf>
2. Quality Standards:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/abptrfe-part-iii-clinical-quality-standards.pdf>

## Goals

To measure ongoing achievement of the mission, programs establish goals that describe the general aims or purposes of the program administration and its curriculum. Effective goals are broadly stated, meaningful, achievable, and lead to assessable outcomes. Goals provide a framework for determining the more specific educational program outcomes and are consistent with the mission. This framework informs curriculum development, continuous improvement efforts, financial stability, strategic planning, and program sustainability1. Program goals are looking at what the program’s aims are rather than specific resident outcomes.

ABPTRFE recommends that programs establish a reasonable number of goals that can consistently be measured year-over-year. Generally, programs may want to focus on monitoring and measuring 6 program goals. Programs may want to focus 2 goals each of the following areas: 1) participant learning achievement, 2) program sustainability, and 3) program effectiveness1.

*Example of a Program goal: The Program will provide the necessary content and clinical experiences to prepare the resident for successful completion of the ABPTS specialist certification examination.*

Additional resources for program goal development and requirements can be found at

1. Exhibit 2 guidance instructions:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/non-clinical-programs/abptrfe-exhibit-02-guidance-instructions-example.pdf>
2. Quality Standards:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/abptrfe-part-iii-clinical-quality-standards.pdf>
3. Webinar on exhibits 2 and 3 (55 min):<https://youtu.be/6FzclNMRebI>

## Outcomes

A program’s outcomes are concise statements that flow from and support achievement of the program’s mission and goals through the curriculum offered. Program outcomes reflect the defined area of practice. Program outcomes reflect the specific knowledge, skills, and affective behaviors participants achieve upon completion of educational and patient-care activities (e.g., didactic, clinical/non-clinical, and other curricular activities). Program outcomes are observable, measurable, and focus on *learning outcomes rather than curriculum inputs*.

ABPTRFE recommends that programs establish a reasonable number of outcomes that can consistently be measured year-over-year. Generally, programs may want to focus on monitoring and measuring 6 to 8 program outcomes3.

Additional resources for program outcome development and requirements can be found at

1. Exhibit 2 guidance instructions:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/non-clinical-programs/abptrfe-exhibit-02-guidance-instructions-example.pdf>
2. Quality Standards:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/abptrfe-part-iii-clinical-quality-standards.pdf>
3. Exhibit 3 guidance instructions:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/non-clinical-programs/abptrfe-exhibit-03-guidance-instructions-example.pdf>

## Key Indicators

Programs identify key indicators that communicate the types of measurable performance metrics to gauge achievement of the mission over time. The program identifies quantitative and qualitative metrics that best measure achievement of the mission, goals, and outcomes. The program identifies the corresponding data that supports the key indicators which are regularly collected and evaluated. The results of this data inform continuous improvement efforts1 and must be reported annually as part of the Annual Continuous Improvement Report (ACIR).

ABPTRFE recommends that programs identify 3 key indicators to measure each goal. Key indicators can be either quantitative or qualitative depending on what data programs determine best communicates achievement of the goals1.

PRO TIP: The Self Evaluation Report (SER)/Exhibit 2 only allows the program to have 4 key indicators per program goal. If you have more key indicators for a goal, you may consider if any of those key indicators are already listed for a separate goal that they do not need to be repeated in the subsequent goal. 

Key indicators are also required for assessment of program outcomes in exhibit 3 but here 8 key indicators are allowed per outcome.

* A qualitative indicator describes an accomplishment resulting from significant effort and allocation of resources that cannot be captured numerically. Often qualitative indicators are accompanied by expectations for completing the activity within a certain timeframe and at a high level of quality. Examples include accurate and timely completion of program budget, successful implementation of continuous improvement actions or operational structures, or providing support services that increase participant achievement1.
* A quantitative indicator represents numerically the extent to which a goal or outcome is achieved. To communicate accurately the progress that has been made, a baseline must be established for a quantitative indicator. Examples include setting enrollment targets, improving retention and graduation rates, achieving a ranking, certification pass rates, or improving participant satisfaction1.

Additional resources for key indicator development and requirements can be found at

1. Exhibit 2 guidance instructions:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/non-clinical-programs/abptrfe-exhibit-02-guidance-instructions-example.pdf>
2. Quality Standards:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/abptrfe-part-iii-clinical-quality-standards.pdf>
3. Exhibit 3 guidance instructions:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/non-clinical-programs/abptrfe-exhibit-03-guidance-instructions-example.pdf>

## 

## Exhibits 2 and 3

Once the program’s goals, outcomes and key indicators have been established, the program will use exhibits 2 and 3 as a method of assessment that is submitted as part of initial accreditation and the annual report once accredited. This will assist the program in determining if they are successfully achieving their goals or if modifications of stated goals, outcomes, key indicators and/or assessment methods are required.

Examples of exhibit 2 and 3 can be found at<https://abptrfe.apta.org/for-programs/clinical-programs>.

* Exhibit 2:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/clinical-programs/exhibit-2-mission-and-goals-chart.docx>
* Exhibit 3:<https://abptrfe.apta.org/globalassets/abptrfe/for-programs/clinical-programs/exhibit-3-assessment-table.docx>

# Planning the Curriculum of a Neurologic Residency Program

The overall curriculum of a residency program involves the integration of learning from:

* **clinical practice and mentoring** **opportunities** that address the patient/ client management model and reinforce theory / foundational knowledge;
* **didactic experiences** that address the theoretical / foundational aspects of neurorehabilitation science and the practice expectations associated with professional roles, responsibilities, and values.

## Description of Residency Practice

When developing a neurologic residency curriculum, it is important to make sure that the major content areas of the curriculum are related to the [*Neurologic Physical Therapy Description of Residency Practice* (DRP)](https://abptrfe.apta.org/for-programs/clinical-programs/neurology), a document that is a product of collaborative work by ABPTRFE and the APTA Physical Therapy Outcomes Registry staff, and is based on the feedback received from members of the American Board of Physical Therapy Specialties (ABPTS) and directors of residency programs.

This document is meant to reduce unwarranted curriculum variability; provide residents minimum consistency in learning experiences for that area of practice, and streamline the accreditation process. The DRP allows flexibility for programs to incorporate additional learning experiences unique to the program’s environment that are beyond the minimum standard expectations. The DRP is updated every ten years and publication of an updated DRP will require neurologic residency programs to modify the content of their curriculum to reflect the new DRP. **Didactic Learning Experiences**

Didactic content is intended to broaden the resident’s understanding of theoretical and foundational knowledge areas defined in the DRP (June 2017). See the DRP for more detail regarding each topic.

|  |  |
| --- | --- |
| Knowledge areas | |
| Foundation Sciences | anatomy/neuroanatomy; physiology/neurophysiology; movement science |
| Behavioral Sciences | psychology/ neuropsychology; psychiatry; teaching and learning theory |
| Clinical Sciences | pathology; epidemiology; medical management; pharmacology |
| Clinical Reasoning and Critical Inquiry | application of decision-making algorithms and models to clinical practice; integration of ICF framework to inform clinical decisions and prioritize POC; clinical research methodology appraisal; critical evaluation of test psychometrics and application of principles of measurement in clinical practice; judicious evaluation of components and merit of published evidence |
| Professional competencies | |
| Communication | employs effective communication strategies; empowers individuals in management of own health; facilities collaborative team management and transitions of care; addresses cultural or social issues that affect POC |
| Education | performs a needs assessment; develops educational objectives based on learning needs; develops and customizes appropriate teaching strategies and methods based on learning objectives/identified learning preferences; implements education plan, accurately and objectively assesses learning outcomes of teaching strategies; educates PT students and colleagues; educates health care professionals outside of PT; educates community groups |
| Consultation | synthesizes information from wide variety of sources; effectively contributes to multidisciplinary team decision-making; renders specialist opinion; provides peer and utilization review |
| Evidence-Based Practice | evaluates the efficacy and effectiveness of new and established examination tools, interventions and technologies; critically appraises peer-reviewed evidence and judiciously translates into practice; participates in conducting and disseminating clinical research following ethical guidelines; participates in collecting and interpreting outcomes data; synthesizes information from a variety of sources to develop evidence-based clinical practice |
| Prevention, Wellness, and Health Promotion | develops and implements programs to promote health and fitness at the individual and societal level; promotes health and quality of life; establishes screening programs for neurologic problems and uses screening programs to identify at-risk populations |
| Social Responsibility and Advocacy | seeks unique solutions to challenging problems for the person; advocates with policy- and lawmaking bodies; promotes advanced neurologic practice at the local, regional, national and/or international levels; represents neurologic PT to other professions/professional organizations |
| Leadership | models and facilitates ethical principles; pursues opportunities to mentor others; resolves conflicts or challenge situations using multiple strategies; models and facilitates the translation of evidence into clinical practice; facilitates the use of evidence to shape policies and procedural change |
| Professional Development | practices active reflection/self-evaluation; models and facilitates a continued pursuit of additional and advanced knowledge, skills and competencies; maintains current knowledge of developments that impact neurologic PT practice |
| Psychomotor skills | |
| Patient and Client Examination | history; systems review; examination procedures; tests and measures |
| Evaluation | skillfully interprets observed movement and function; differentiates examination findings across ICF domains that require mediation vs compensatory strategies; links examination findings, personal modifiers and environmental factors with personal goals; integrates examination findings obtained by other healthcare professionals; develops sound clinical judgements based on data collected |
| Diagnosis | differentially diagnoses emergent vs nonemergent neurologic signs and symptoms; differentially diagnoses body function, structures and functional performance findings consistent or inconsistent with health condition and if amenable to intervention; confers with other professionals regarding examination needs that are beyond the scope of PT and refers as appropriate |
| Prognosis | analyzes barriers; predicts potential for recovery and time to achieve optimal level of improvement across ICF domains; collaborates with individuals and families in setting goals; develops POC that prioritizes interventions related to recovery process, patient/family goals and resources; develops POC that prioritizes interventions related to all levels of prevention, health and wellness |
| Intervention | clinical decision-making and prioritization of interventions; coordination, communication, documentation; patient and client instruction; procedural interventions |
| Outcomes Assessment | selects appropriate outcome measures; adjusts plan of care within and across episodes based on interpretation of results; analyzes and interprets outcomes to modify future practice |

Using the DRP content areas listed above as a guide, program developers can identify the core topics to include in the didactic curriculum by assessing their program’s strengths and the resources available to it.

For example:

* If there are program faculty with clinical / teaching expertise in certain content areas, it may be easy to capitalize on these resources and engage these individuals in the development of this portion of the curriculum
* The patient population served by the program’s clinic may help to guide curricular decisions:
  + If a clinic services a large population of individuals with a certain health condition, it may be important to develop the depth of resident learning in this area; for example, if a clinical facility specializes in the care of individuals with severe traumatic brain injury, it would be appropriate to develop didactic content addressing the examination and management of patients who are minimally conscious;
  + If a program has limited access to individuals with certain neurologic health conditions, a didactic unit should be developed to provide exposure to relevant concepts in patient /client management for these diagnostic categories (see information regarding patient populations and primary health conditions requirements in the DRP as well as discussed below when discussing developing clinical experiences);
  + If a program’s clinical services do not cover the care of individuals across the lifespan, didactic content can be added to supplement deficient age ranges
* A facility may be able to take advantage of pre-existing didactic learning opportunities; these may be sponsored by the clinical and / or academic groups associated with the program, or they may be provided by outside institutions / organizations:
  + For example, there may be an on-site journal club already established within a clinical facility; it may address a topic unique to another rehabilitation discipline, such as neuropsychology
  + Academic or continuing education classes or online educational modules may also be used as a means of providing didactic training
* A program’s mission statement and goals may direct some of the didactic content decisions:
  + For example, if one of a program’s goals is to advance care to underserved neurologic populations, it may be important to provide foundational content addressing medical care concerns for the socially disadvantaged patient/ client

## 

## Curricular Development Framework

It can be challenging to begin the process of developing curricular content for a specific didactic unit within a residency program. The steps listed below are intended to provide a framework for this process.

### Step #1: Defining a topic and developing learning objectives:

The more specific a topic is, the easier it will be to speak about it and study it with the resident; one topic may have several different aspects that could be potentially explored:

* For example, if a faculty member attempts to tackle the topic of balance, the content area will be too large and unfocused;
  + To narrow the focus, one could choose to define a patient population (either diagnosis specific or age-specific, perhaps) OR select one particular aspect of balance (standardized assessment tools, for example) OR combine both of these (standardized balance assessment tools for use with individuals post-TBI)
* Developing learning objectives for foundational knowledge content:
  + This faculty responsibility can be challenging at the outset, especially for those who have not had an opportunity to engage in this task previously
  + Objectives are the infrastructure upon which learning experiences and assessment are built. They are written first, followed by the design of a learning experience that should meet the objectives, and finally, the development of an assessment which will determine whether the resident actually met the objectives.
  + Every learning experience should have some objectives: course objectives, objectives for assignments/observations, papers, etc. These represent what the resident will learn/accomplish by participating in the experience.
  + Learning objectives should:
* Be RESIDENT-CENTERED, e.g.,
  + By the end of this didactic session, the resident will analyze common gait characteristics of a client with post-polio syndrome
  + NOT: The mentor will provide video tapes and guidelines for analysis
* Be SPECIFIC, e.g.,
  + Define the parameters of xxx problem
  + Choose appropriate formulas
  + Etc.
  + NOT: Be able to solve a xxx problem
* Use CAREFULLY CHOSEN ACTION VERBS
  + These communicate the kind of intellectual effort that is expected, e.g.,
    - List the steps in the diagnostic process
    - Evaluate published clinical practice guidelines on BPPV
* Be MEASURABLE
  + Define, explain, differentiate
  + NOT: understand, know, be familiar with, comprehend, learn, appreciate

### Step #2: Topic foundational knowledge

* What foundational knowledge will the resident be required to use / integrate?
  + Content may require that the resident review / integrate knowledge in one or more of the following areas of the Description of Residency Practice:
    - *foundational sciences* (anatomy/neuroanatomy; physiology/neurophysiology; movement sciences)
    - *behavioral sciences* (psychology/ neuropsychology; psychiatry; teaching and learning theory)
    - *clinical sciences* (pathology; epidemiology; medical management; pharmacology)
    - *critical reasoning and critical inquiry* (application of decision-making algorithms and models to clinical practice; integration of ICF framework to inform clinical decisions and prioritize POC; clinical research methodology appraisal; critical evaluation of test psychometrics and application of principles of measurement in clinical practice; judicious evaluation of components and merit of published evidences)

### Step #3: Current evidence related to the selected topic

* Determining what the resident should read
  + Are there pivotal articles related to the subject area that would be considered required reading for the resident?
  + Are there aspects of the topic that lend themselves well to a literature search that the resident might perform?
* In general, how has this topic been studied?
  + approaches may have involved research lab methods vs. clinical research paradigms: what are the benefits / limitations of either method for studying this topic?
* What is already known about the topic? What areas require further research?

### Step #4: Relating the didactic content to the patient / client management model

How does the didactic content relate to patient care? To answer this question, one might address any of the categories / questions below:

* Patient examination
  + Are there relevant examination procedures / standardized tests and measures that pertain to the topic area?
  + If the didactic content focuses on patient examination, it will be especially important to consider the psychometric properties of the tests and measures that are addressed so that the findings might be adequately interpreted
  + If a topic is intervention based, it would be appropriate to determine what examination findings might lead someone to select the specific intervention that is being addressed
* Patient evaluation / Diagnosis / Prognosis
  + Consider the relationship among impairments, activity and participation restrictions in the evaluation process
  + Can the didactic knowledge be used to classify patients into diagnostic practice patterns or help to delineate more measurable prognosis statements?
* Intervention
  + How will this didactic knowledge guide the resident to select interventions that have the greatest likelihood of producing successful patient outcomes?
  + Compare and contrast interventions that might be used to address the same impairment/ activity or participation restriction
  + What patient-related instruction might be applicable to the intervention the resident is studying?

### Step #5: Performance-Based Content: Acquisition and Assessment

* What performance-based skills are considered to be basic / advanced related to this topic?
  + Within this range of skills, which will be reviewed or taught? Skills might address patient examination or be related to the delivery of an intervention.
* What is the optimal manner of providing opportunities for performance-based skill development?
  + What is the best way to teach the skills that are new to the resident?
  + After learning the essential skills, what is the best way for the resident to further refine his/ her skill level with this content? (practice on the other staff members, practice on the content mentor, mentored pt experience, etc.)
* What is the best method of demonstrating the resident’s mastery of the performance-based content? Some assessment methods to consider could be:
  + Patient assessment and/or treatment with feedback from mentor
  + Mock “lab examination”
  + Analysis of video-based patient example
* What performance-based learning objectives are appropriate for this clinical content?
  + What level of performance do you consider to be indicative of skill mastery?

### Step #6: Evaluating knowledge acquisition

In addition to evaluating performance-based skill, what is the optimal manner of determining the resident’s knowledge of this didactic content? Some options to consider might include:

* Written examination
* Oral examination
* Patient case report (resident selects a case and applies the knowledge gained in the module to this case)
* Patient case analysis (the mentor provides a written case to the resident; the resident analyzes different aspects of this case)
* Literature review
* Reflection paper

## Bloom’s Taxonomy Resources

Refer to **BLOOM’S TAXONOMY** below for information on creating learning objectives which progress the learner from a basic level of understanding to a level that is more consistent with expert care.

Bloom’s Taxonomy is invaluable for writing learning objectives. The Taxonomy lists categories of learning behaviors in a hierarchical fashion, ranging from simple to complex. These categories can be thought of as the goals of the learning process, and vary by degree of difficulty.

Each learning level has associated action verbs that can be used when writing objectives. For residents, most learning experiences should have objectives in the higher levels of the taxonomy.

Learning objectives are shared at the outset of a course/assignment/experience, so they communicate expectations to the resident. For example, an objective that states, “List imaging tests used to diagnose hemorrhagic stroke” would convey a very different level of learning than “Locate an intracerebral hemorrhage on a CT Scan”. They also guide the mentor/teacher in preparing content at the appropriate level of difficulty (e.g., reading about diagnostic tests vs. analyzing CT scans).

Finally, they guide the level of assessment (e.g., test questions). Three cognitive levels of assessment are: recall, application, and synthesis.

### Bloom’s Taxonomy Categories in the Cognitive Domain: (with Outcome-Illustrating Verbs)

The major idea of the taxonomy is that what educators want students to know (encompassed in statements of [educational objectives](http://chiron.valdosta.edu/whuitt/col/plan/behobj.html)) can be arranged in a hierarchy from less to more complex. The taxonomy is presented below with sample verbs and a sample behavior statement for each level.

1. **Knowledge** of terminology; specific facts; ways and means of dealing with specifics (conventions, trends and sequences, classifications and categories, criteria, methodology); universals and abstractions in a field (principles and generalizations, theories and structures):  
   Knowledge is (here) defined as the remembering (recalling) of appropriate, previously learned information.
   1. defines; describes; enumerates; identifies; labels; lists; matches; names; reads; records; reproduces; selects; states; views; writes
2. **Comprehension**: Grasping (understanding) the meaning of informational materials.
   1. classifies; cites; converts; describes; discusses; estimates; explains; generalizes; gives examples; illustrates; makes sense out of; paraphrases; restates (in own words); summarizes; traces; understands.
3. **Application**: The use of previously learned information in new and concrete situations to solve problems that have single or best answers.
   1. acts; administers; applies; articulates; assesses; charts; collects; computes; constructs; contributes; controls; demonstrates; determines; develops; discovers; establishes; extends; implements; includes; informs; instructs; operationalizes; participates; predicts; prepares; preserves; produces; projects; provides; relates; reports; shows; solves; teaches; transfers; uses; utilizes.
4. **Analysis**: The breaking down of informational materials into their component parts, examining (and trying to understand the organizational structure of) such information to develop divergent conclusions by identifying motives or causes, making inferences, and/or finding evidence to support generalizations.
   1. analyzes; breaks down; categorizes; compares; contrasts; correlates; diagrams; differentiates; discriminates; distinguishes; focuses; illustrates; infers; limits; outlines; points out; prioritizes; recognizes; separates; subdivides.
5. **Synthesis**: Creatively or divergently applying prior knowledge and skills to produce a new or original whole.
   1. adapts; anticipates; collaborates; combines; communicates; compiles; composes; creates; designs; develops; devises; expresses; facilitates; formulates; generates; hypothesizes; incorporates; individualizes; initiates; integrates; intervenes; invents; models; modifies; negotiates; plans; progresses; rearranges; reconstructs; reinforces; reorganizes; revises; structures; substitutes; validates.
6. **Evaluation**: Judging the value of material based on personal values/opinions, resulting in an end product, with a given purpose, without real right or wrong answers.
   1. appraises; compares & contrasts; concludes; criticizes; critiques; decides; defends; interprets; judges; justifies; reframes; supports.

### 

### Examples of test questions written at the recall level, application, and synthesis level follow:

* **Recall level: tests isolated facts, e.g.:**
  + For people with Parkinson’s disease, Sinemet acts as a(n):
    1. acetylcholine agonist.
    2. central nervous system depressant.
    3. dopamine replacement\*
    4. monoamine oxidase inhibitor.
* **Application level: tests application of knowledge, e.g.:**
  + Which of the following is a benefit of controlled-release Sinemet?
    1. controls spasticity throughout the dose period
    2. improves poor motor planning associated with Parkinson’s disease
    3. reduces symptoms of orthostatic hypotension
    4. reduces effects of on-off phenomenon\*
* **Synthesis level: tests the ability to come to a conclusion based on multiple sources of information, e.g.:**
  + An 86-year-old patient with a 12-year history of Parkinson’s disease began having episodes of “freezing” about 1 year ago. These especially occur when stepping in and out of the bathtub, and when negotiating stairs. He has experienced occasional falls which have recently increased in frequency to about 3 per week. The patient’s wife is no longer able to assist him up from the floor after a fall so he has been spending more and more time in bed. His past medical history included hypertension and Type II diabetes, and he takes Glucotrol, Inderal, and Sinemet.
  + Following a recent Emergency Department visit for a fall which resulted in a concussion, this patient is referred for physical therapy. During the first session, the physical therapist should determine:

1. how long it has been since the patient’s Sinemet dose has been adjusted\*
2. the patient’s level of safety walking both with and without an assistive device.
3. the patient’s score on the Freezing of Gait Questionnaire.
4. whether the patient has had a recent MRI of the brain.

### Examples of test questions with learning objectives link to assessment by matching the action verb of the objective to the cognitive level

* + **Learning Objective: Define incomplete spinal cord injury *(recall)***
    - Question: According to the International Standards for Neurological Classification, the neurologic finding that distinguishes an incomplete from a complete spinal cord injury is the presence of:
      1. an intact sacral reflex arc.
      2. controlled emptying of the bladder.
      3. normal deep tendon reflexes below the level of the lesion.
      4. voluntary anal sphincter function\*
* **Learning Objective: Explain respiratory impairments associated with tetraplegia. *(application)***
  + Question: A patient with a complete C6 spinal cord injury will have compromised respiratory function secondary to:
    1. an inability to utilize accessory muscles for inhalation.
    2. loss of innervation to the diaphragm.
    3. paralysis of muscles of forced expiration\*
    4. reliance on prolonged mechanical ventilation.
* **Learning Objective: Prioritize physical therapy interventions for patients with acute paraplegia (*synthesis*)**
  + Question: A patient with complete T12 paraplegia has just started spending periods of time sitting up in a wheelchair. He is wearing a plastic TLSO. During an early physical therapy session, he should be trained in:
    1. a lifting pressure relief completed every 60 minutes.
    2. an efficient mode of wheelchair propulsion\*
    3. how to perform an assisted cough.
    4. rolling side to side using trunk rotation.

Importantly, objectives written at the “analyze” or “application” level should *not* be tested with questions that ask for “recall” of information.

**Reference**: Ambrose, S.A., Bridges, M.W., Lovett, M.C., DiPietro, M., Norman, M.K. (2010). *How Learning Works: Seven Research-Based Principles for Smart Teaching.* San Francisco, CA: Jossey-Bass.

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## Example Residency Syllabus

The following residency syllabus has been provided as an example of how the previous recommendations may be integrated into a final format for the resident. Creating a syllabus for each content area is not required, but a helpful tool to organize a section of material when developing or updating the didactic portion of residency/fellowship.

For smaller didactic content, developing a course description and objectives are recommended.

**Course:** Foundation Sciences I

**Course Description:**

The purpose of this course is to provide a neuroanatomical and neurophysiological understanding for pathological conditions commonly encountered in the clinic. The syllabus follows a regional approach where basic science principles are presented to form the foundation for discussion of selected clinical correlations. This course includes the following topics:

I. Neuroscience

II. Skill Acquisition/Motor Learning

III. Motor Control

**Course Objectives:**

*The resident will:*

**Anatomy/Neuroanatomy**:

* Predict alterations in body structure and function given an occlusion of specific CNS arteries (e.g., anterior, middle, and posterior cerebral arteries).
* Relate lesioned areas on a brain, brainstem, or spinal cord section to specific anatomical structures and functions.
* Relate neuroanatomical changes (e.g., gray and white matter, synapses) across the lifespan with changes in sensory, motor, and cognitive functions.

**Neuroplasticity:**

* Identify neuroanatomical and neurophysiological processes that may underlie neuroplastic changes associated with learning, memory, and recovery from CNS injury.
* Synthesize current evidence regarding principles of behavioral training that drive neuroplastic changes associated with motor learning and/or recovery following neurologic injury or disease.
* Critically examine the relevance and feasibility of application of current neuroplasticity concepts to the treatment of individuals with neurologic conditions across lifespan.

**Neurophysiology:**

* Compare and contrast the etiology, clinical characteristics, and neurophysiological basis for neurogenic vs. non-neurogenic pain (e.g., painful diabetic peripheral neuropathy vs. low back pain).
* Distinguish between the etiology, clinical characteristics, and neurophysiological basis of common sensory vs. perceptual disorders (e.g., homonymous hemianopsia vs. unilateral neglect) following brain injury.
* Compare and contrast nervous and immune system effects of acute vs. chronic stress.
* Relate the effects of autonomic nervous system dysfunction to abnormal exercise responses.

**Skill Acquisition/ Motor Learning:**

* Discuss the component parts of a theoretical model of motor skill acquisition and retention.
* Discuss the interrelationship among kinematic and kinetic variables of a specific task.
* Differentiate explicit and implicit memory systems and their impact on motor skill acquisition post neurologic injury.

**Motor Control:**

* Explain how the organization and control of movement is constrained by factors within the individual, the task, and the environment.
* Compare and contrast the following theories of motor control: reflex, hierarchical, motor programming, systems, dynamic action, and ecologic, including basic neural elements used to explain the control of movement, limitations, and clinical applications.
* Compare and contrast neurofacilitation and task-oriented approaches to neurologic rehabilitation in regards to their underlying assumptions about movement control, functional recovery, and clinical assessment and treatment practices.

**Methods of Instruction:**

* 12 hours of lecture/group discussion of neuroanatomy and neurophysiology
* 12 hours of lecture/group discussion on general principles of skill acquisition/motor learning and motor control.

**Faculty:** Neuroscience: Joe Smith, PT, PhD

Skill Acquisition/Motor Learning/Motor Control: Jane Smith, PT, PhD, NCS

**Recommended Readings:**

Please refer to the resources listed under Foundation Sciences on the Neurology Section Resource List.

**Student Evaluation:**

* Student evaluation will be based on class participation and a comprehensive examination at the end of Semester I. A score of 80% or higher on the comprehensive examination is passing.
* Practical examination with rationale for treatment based on principles of neuroscience, upper motor neuron syndrome, and motor learning/control. Pass/Fail.

## Using Active Learning Strategies for Teaching Didactic Content

“Active learning” engages a resident in such higher-order thinking tasks as analysis, synthesis, and evaluation. Strategies promoting active learning involve residents in **doing** things and **thinking** about what they are doing. While this could include traditional activities such as homework, the core elements of active learning are student activity and engagement in the learning process. Such learning is often contrasted to the traditional lecture where students passively receive information from the instructor. (Bonwell and Eison, 1991.)

Teaching and learning in a residency program lends itself to such strategies, since residents are adult learners aspiring to excel in a profession which requires constant “doing” and problem-solving. Below are some **examples** of teaching methods that promote active learning.

|  |  |
| --- | --- |
| Large group/classroom teaching | Very small group or one-on-one teaching |
| Embed a multiple-choice question in a lecture; ask residents to answer it, then discuss. | Administer short quiz on specific topic prior to mentoring session to assess resident’s level of knowledge and then discuss. |
| Patient video analysis   * Have residents analyze/propose intervention for a functional task or gait, or score a test such as gait velocity or the FGA * Present a paper referral, have residents propose interview questions, then watch video of history; propose tests and measures, watch subsequent exam; propose goals and interventions * Have residents observe and critique a portion of a treatment session. | |
|  | Clinical narrative – resident relates details of clinical decision making following a live patient exam and/or treatment; or analyzes the clinical narrative of another clinician |
| Have residents do short presentations on selected topics to the class, or to entry-level students. | Have resident “lecture” to mentor or to entry-level student. |
| Residents keep a blog or journal about clinical or other learning experiences | |
| “Think/write-pair-share” – instructor poses a question and gives class 30 seconds to write an answer; then residents pair and discuss their respective answers. | Resident preps for class session by doing assigned reading(s), mentor asks questions that require application/ evaluation/analysis/ synthesis of reading material. |
| Assign a concept map activity to evaluate prior knowledge. | |
| Provide residents time/conversation for reflection: “What did you learn from this assignment? What did you do to prepare? What was the most valuable feature of this project? What skills do you still need to work on based on the outcome of this assignment?” Etc. | |
| Utilize peer review. | |
| Develop a portfolio: resident documents personal/professional mission/vision statement; includes listing of all/most experiences encountered/learned during the residency; can be helpful to demonstrate skills to potential employer. | |
| Given a clinical problem to resolve, the resident proposes a clinical decision making algorithm to explore the problem from all angles. | |
| Resident creates a clinical practice guideline for a specific topic within the clinical facility. | |
|  | Resident participates in a chart review within the department: what’s missing/ what’s well documented. |
| Resident participates in or leads a case discussion session (retrospective case) or live case (example: gait analysis session). | |

**References**:

Bonwell, C.C., Eison, J.A. (1991). Active Learning: Creating Excitement in the Classroom. In *ASHEERIC Higher Education Report No.1*. Washington, DC: George Washington University.

Ambrose, S.A., Bridges, M.W., Lovett, M.C., DiPietro, M., Norman, M.K. (2010). *How Learning Works: Seven Research-Based Principles for Smart Teaching.* San Francisco, CA: Jossey-Bass.

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## Clinical Practice Experiences

Clinical practice provides the opportunity for a resident to apply knowledge gained from didactic experiences to patient care. Clinical practice also helps to shape the theoretical and foundational topics that are relevant to each resident’s experience. Patient-driven questions often drive the direction of the content that is covered within a residency program. Whenever possible, it is helpful to align the didactic experiences with clinical practice.

Across the duration of many programs, residents are required to rotate from one unit to another within the healthcare system. The determination of an optimal rotation sequence may take into account any of the following factors:

* Following the normal flow of patients through the health system (acute hospital, inpatient acute rehabilitation unit, outpatient department, home health care)
* Interdisciplinary exposure and support: it may be helpful to begin the clinical experiences of a residency program with the unit offering the maximum amount of interdisciplinary networking opportunities so the resident can gain a good understanding of each team member’s role, responsibilities, communication style, and patient care preferences

### Minimum Clinical Patient Experiences

The Description of Residency Practice for Neurology requires the following minimums for clinical patient experiences

#### Practice Settings

* + A resident should experience a minimum of 5% of their time in each setting noted below
  + If a residency program is unable to provide each participant with an opportunity to engage in patient care activities within these settings, the program must provide additional learning opportunities (eg, observation, didactic, journal club, research) related to patient care within these settings for the minimum required hours noted above. Additional learning opportunities in which the resident is not directly involved with patient care, do not count towards the required clinical care hours.
    - Acute care
    - Inpatient rehabilitation facility or skilled nursing facility
    - Outpatient facility

#### Patient Populations

* + The residency must include a variety of patient populations, specific to sex and age group as listed below, for a minimum of 5% of the program hours
  + If a residency program is unable to provide each participant with an opportunity to engage in patient care activities within these populations, the program must provide additional learning opportunities (eg, observation, didactic, journal club, research) related to patient care within these populations for the minimum required hours noted above. Additional learning opportunities in which the resident is not directly involved with patient care, do not count towards the required clinical care hours
    - Age
      * Adults (22-59 years of age)
      * Geriatrics (60 years of age to end of life)
    - Sex
      * Female
      * Male

#### Primary Health Conditions

* + Must include a variety of primary health conditions and will be tracked through the use of exhibit 4. Note the Primary Health Conditions chart in the 2017 DRP for Neurology has been updated and programs should be using the current format for exhibit 4 for tracking, initial accreditation and annual report submission.
  + The updated Primary Health Conditions Chart can be found in the Education Academy’s Residency and Fellowship SIG HUB community:<http://communities.apta.org/p/do/sd/sid=5192>
    - Primary health conditions included as of 2021: acute poliomyelitis/postpoliomyelitis syndrome, amyotrophic lateral sclerosis, basal ganglia disorders, central nervous system tumors, cerebellar disorders, cerebral palsy, cerebrovascular disease, dementia/Alzheimer’s disease, Guillain-Barre syndrome and polyneuropathies, multiple sclerosis, peripheral neuropathy, psychiatric disorders and aphysiologic disorders, spinal cord injury, traumatic brain injury, vestibular disorders, muscle disease, amputations in individuals with neurologic disorders, falls and balance disorders
  + As part of the program’s application process, a primary health conditions charge (exhibit 4) must be submitted with the organization's analysis of percentage treated of each diagnostic category.
  + If a residency program is unable to provide each participant with an opportunity to engage in patient care activities within a majority of these populations, the program must provide additional learning opportunities (eg, observation, didactic, journal club, research) related to patient care within these conditions. Additional learning opportunities in which the resident is not directly involved with patient care, do not count towards the required clinical care hours

## 

## Appreciating the Dynamic Aspects of a Curriculum

Although a curriculum represents a planned set of learning activities, there will always need to be flexibility in the delivery of its content, based on prevailing factors that frequently arise within a residency program. The sequencing of curricular content may be influenced by:

* The availability of patients to provide the necessary experiential learning opportunities within a content area
* The availability of clinical mentors involved with teaching
* The teaching responsibilities that the resident may assume over the course of the program
  + A resident may need to complete specific course work in advance of providing instruction to entry level physical therapy students
* The need to “front load” some aspects of the curriculum that provide some basic knowledge and skill training that is considered essential for resident success across the entire program
* The workload of the resident at any one time within the program: adjustments in curricular flow may need to be made to protect the resident from excessively high curricular demands

Within a program’s mission statement and goals, the patient populations and health conditions that are readily available to the resident are defined. Due to the patient census fluctuations that are frequently part of neurologic practice, it is not always possible to provide the resident with a reasonable exposure to certain diagnostic groups. When this situation arises, the resident can be asked to engage in additional learning experiences to augment his/her knowledge in these areas. Some suggested ways to accomplish this are as follows:

* Assign the resident readings that address this content area:
  + the [NCS Resource List](https://neuropt.org/docs/default-source/neurologic-specialist-certification/ncs-resource-list-august-2022.pdf?sfvrsn=a12f5d43_0) (updated 2022) and articles posted by the ANPT Special Interest Groups can be useful in selecting relevant literature
  + Identify an author with considerable expertise in this diagnostic category, and follow the evolution of articles that this person has contributed to the literature to see how this specialty practice has evolved
* Have the resident shadow a clinician who treats individuals in this diagnostic category
  + This may involve connecting with another local health care system and creating a memorandum of understanding to delineate the expectations of the learning experience that will be provided to the resident
* Look to see if there is educational material available already:
  + [ANPT Education Center](https://anpteducationcenter.org)
  + APTA Learning Center
  + University websites
* Create a clinical scenario (paper case) and have the resident look into relevant tests and measures, interventions, or prognostic information to highlight the uniqueness of the patient and/ or the diagnostic category
* Connect with another residency program that may have better access to the patient population that is not well supported by your own program: propose a method of sharing resources that might be mutually beneficial

### Augmentative Teaching Materials

Laboratory experiences allow the resident to practice assessments and treatment techniques to gain competency in advanced psychomotor skills. They can be formal as part of a didactic course or informal according to the resident’s case load. Residents could be assigned readings and/or case studies in preparation for the lab.

Residents can also be provided with specialty clinic and health care professional observation experiences to allow clinical practice and/or observational opportunities in specific neurologic patient populations or practice areas. In addition, these experiences provide opportunities for the resident to learn more about the roles and scope of practice of other professionals and fosters interdisciplinary collaborations. These experiences would ideally include mentorship by a physical therapist.

Additional learning opportunities in which the resident is not directly involved with patient care, do not count towards the required clinical care hours, but can help augment areas in which the resident may not have access within the organization's patient care experiences. All of these experiences should align with the DRP and required patient and diagnostic populations requirements.

## Writing Case Reports/Studies

Writing a case report/study is an excellent way to get residents to explore and critically evaluate the literature and communicate using a scientific writing style. These reports encourage residents to engage in a reflective process that requires them to articulate key patient-centered issues while concisely reporting patient data and analyzing the decisions they’ve made in the areas of physical therapy examination, management and outcomes for a patient with a neurologic disease/disorder. Resources that can be helpful for residency directors, faculty and residents to develop and write case reports/studies that are available through the APTA include the following:

* McEwen I (Editor). *Writing Case Reports: A How-to Manual for Clinicians* (3rd ed.). Alexandria, VA: American Physical Therapy Association.

The book can be purchased online at this link:

<https://store.apta.org/writing-case-reports-a-how-to-manual-for-clinici.html>

* Instructions on how to write case reports/studies for submission to either *Physical Therapy* or the *Journal of Neurologic Physical Therapy* can be found at their respective websites under the heading Information/Instruction for Authors:
  + <https://academic.oup.com/ptj/pages/Author_Guidelines> (*PT*)
  + <http://edmgr.ovid.com/jnpt/accounts/ifauth.htm> (*JNPT*)
* Fillyaw, M.J. (2011). Case report writing in a Doctor of Physical Therapy Education program: A case study. *J Scholar Teach Learn*, 11, 139-154.

\*An sample assessment form for case studies can be found in the Evaluation of Outcomes section of this compendium.

# An Introduction to Mentoring

Mentoring serves as the cornerstone of every physical therapy residency program. Creating a culture that supports the growth and development of individuals who are capable of assuming the role of a clinical mentor requires thoughtful planning and open dialogue about the range of clinical and teaching experience of the program’s faculty, the scope and expectations of the residency training that can be reasonably offered, and the resources available to support mentor development.

The American Board of Physical Therapy Residency and Fellowship Education: *Mentoring Resource Manual; June 2019,* defines **mentoring in a residency and fellowship program** as follows:

*“Clinical mentoring of physical therapists in residency and fellowship education is a continual learning experience that must be provided on an ongoing basis†4 throughout the duration of the program.2 It is focused on patient/client management5and includes examination, evaluation, diagnosis, prognosis, intervention, and outcome. It takes place before, during, and after a patient/client encounter. “Mentoring is provided at a post-licensure level of specialty practice (for residents) or a subspecialty practice level (for fellows), with emphasis on the development of advanced clinical reasoning skills,12 as defined by the respective Description of Specialty Practice (DSP),13 Description of Advanced Specialty Practice (DASP),14 “or analysis of practice.”*

The American Board of Physical Therapy Residency and Fellowship Education: *Mentoring Resource Manual; June 2019,* defines a **mentor** as follows:

*“…a practitioner who has the advanced knowledge, skills, and clinical judgments of a clinical specialist, and who provides instruction to a resident or fellow in patient/client management, advanced professional behaviors, proficiency in communications, and consultation skills. The mentor also may provide instruction in research, teaching, and/or service. The 6 functions frequently cited to describe the roles mentors play are teacher, sponsor, host, guide, exemplar, and counselor”*

As pointed out in this definition, the mentor’s role in developing the skill and professional growth of the resident is multidimensional, and it differs from assuming a clinical instructor role for an entry level physical therapy student. Successful mentoring is first, and foremost, rooted in relationship- it is dependent upon the ability of the mentor and mentee to establish a bond based on trust, honesty, and mutual respect. This serves as the basis for meaningful interactions and conversations between the mentor and the mentee. Although the mentor and mentee walk along the same path during the residency program, the mentor is not there to “hand-hold” or engage in a “show and tell”. Rather, the mentor is constantly setting up opportunities for the resident to engage in self-discovery and reflection consistent with advanced neurologic physical therapy practice. Frequently, these opportunities focus on an analysis of the examination, evaluation, and plan of care decisions rendered, and the process the resident used to arrive at the decisions that were made. The mentor has the additional challenge of being responsive to the changing needs of the resident as he/she encounters clinical situations of varying complexity and familiarity across the program’s duration, while helping to guide the resident to see the “big picture” of professional growth and development that occurs as one reflects on experiences gained through clinical care, didactic and skill training, teaching, service, research, and interdisciplinary interactions.

Refer to Figure 1 below for explanation of components of mentoring (blue boxes) and components of other guided learning experiences (red boxes)

The resources that follow in this section are intended to offer guidance for developing or updating a program’s philosophy and understanding of mentoring. The topics covered are essential to understanding different elements of mentoring in a residency program. This information, along with information from the Mentoring Handbook, Successful Mentorship for Residency and Fellowship Education course, the Processes and Procedures Manual and the Quality Standards can be used in creation of a mentor development plan and/or ongoing mentor development. Much of the content that follows in this compendium regarding mentoring was taken from these resources.

## 

## ABPTRFE Mentor Requirements

### Residency/Fellowship Program Mentors Qualifications per 2022 Quality Standards:

Mentors for residency programs are required to be physical therapists who are either:

1. ABPTS board-certified specialists in the program’s area of practice, or
2. Graduate of an ABPTRFE accredited residency/fellowship program in that area of practice, or
3. Possess significant and current experience (minimum of 3 years) in the program’s area of practice.

The program must have at least 1 ABPTS-certified clinician serving on the faculty of the residency program and is involved in all major areas including curriculum development, clinical experience supervision, mentoring, and participant advising for those residency programs within an ABPTS-approved area of specialty.

For residency programs not within an ABPTS-approved area of specialty, the program documents at least one individual with substantial experience in that defined area of practice.

Mentors for fellowship programs are required to be physical therapists who are either:

1. ABPTS board-certified specialists in the program’s related area of practice and with experience in the area of subspecialty, or
2. Graduate of an ABPTRFE-accredited residency/fellowship program in that related area of practice and with experience in that area of subspecialty, or
3. Possess significant and current experience (minimum of 2 years) in the subspecialty area.

The program must have at least 1 individual with substantial and current experience in that defined area of practice.

In addition, all mentors are encouraged to meet the following requirements:

* Be a physical therapist who can describe and demonstrate the difference between the various levels of teaching (instruction, collaborative and reflective questioning, mentoring, etc)
* Be a physical therapist who can provide a structured learning process for the mentee, tailored toward the learner
* Be a physical therapist who has demonstrated experience in academic or clinical teaching to students, peer-to-peer, and/or in in-service education
* Be a physical therapist who can manage multiple sources of information: diagnosis of the patient, educational diagnosis (or ability to identify clinical learning deficits of the resident/fellow), and development of the mentor/mentee working relationship. All of these components must be directed toward managing the patient and delivering excellent service.

### Residency/Fellowship Mentoring Hours Minimum per the 2022 Quality Standards

Residency programs require participants to complete a minimum of 150 mentoring hours.

* At least 100 of the 150 mentoring hours must be in person (1:1) with the resident as the primary patient/client care provider. The remaining mentoring hours may occur in-person or using synchronous or asynchronous methodologies.

Fellowship programs require participants to complete a minimum of 150 mentoring hours.

* At least 75 of the 150 mentoring hours must be in person (1:1) with the fellow as the primary patient/client care provider. The remaining mentoring hours may occur in-person or using synchronous or asynchronous methodologies.

Clinical mentoring can occur in a variety of mentor to resident/fellow ratios, however hours of mentoring must be divided equally among each resident/fellow during that mentoring session. For example, a 4-hour mentoring session that includes 1 faculty mentor and 2 residents/fellows would count as 2 hours of mentoring for each resident/fellow.

The program director must assess the mentor on an annual basis through direct evaluation of mentoring and through feedback from the residents. Sample assessment forms can be found within the resources section below and in the Mentoring Handbook. The residency director/coordinator must be assessed in their mentoring annually if they play a role in mentorship of the resident. If the coordinator is the mentor then the director should complete the assessment whereas if the director is a mentor then another mentor on the team must complete the assessment.



Pro-tip: engaging mentors in regular development activities will increase their engagement in the program, improve their mentoring skills and you don’t have to reinvent the wheel-use your resources! Any of the following resources could be used as stand alone content with added reflective questions or combined for half day retreat opportunities.

Mentor assessments/evaluations— Sample to be added to end at a later date

## 

## Effective Mentoring

### Core Competencies of an Effective Mentor

An effective mentor should demonstrate the following core competencies. See Table 1 in the Mentoring Handbook for more information about each competency

* Content Knowledge: be able to instruct and evaluate the resident’s/fellow’s skills within his/her area of practice expertise
* Learner Centeredness: demonstrate a commitment to the resident’s/fellow’s success and well-being and assist in his/her professional roles
* Interpersonal and communication skills: able to tailor teaching and communication to the preferred learning style of the resident/fellow in order to facilitate learning
* Professional integrity: demonstrate best practices and role-model these behaviors
* Practice based self-reflection in and on action: demonstrate continuous self-reflection and lifelong learning
* Systems based learning: use all available resources in order to create an optimal teaching/learning environment

### Mentor Responsibilities

The following is Appendix B (Mentor and Mentee Responsibilities) in the Mentoring Handbook.

|  |  |
| --- | --- |
| **Mentor1,19** | **Mentee29** |
| Commits to mentoring4,11 | Commits to learning11  Has the appropriate preparation4, attention, and work habits to incorporate new skills into practice21 |
| Provides resources, experts, and source materials in the field4,26 | Takes the initiative to maximize learning opportunities23 |
| Offers guidance22 and direction regarding professional issues4 | Sees the relationship between personal and professional growth |
| Encourages and acknowledges mentee’s ideas and professional contributions4, 26 | Is willing and confident to try new things23, 25, 29 |
| Provides constructive and useful critique of the mentee’s work and strategies for change22 | Schedules time to routinely self-reflect (reflects on past actions, experiences, and behaviors, then considers how they may apply in future contexts and uses them as a springboard to improved performance)6, 11, 23, 25 |
| Challenges the mentee to expand his/her abilities26 | Active learner4  Extrapolates (applies knowledge, skills, and attributes—KSAs—to novel contexts, which results in improved or new KSAs)23  Synthesizes (integrates established KSAs with each other or with new KSAs, thereby increasing the depth and/or strength of both)23 |
| Provides timely, clear, and comprehensive feedback regarding mentee’s performance and development23 | Accepts feedback and makes change as applicable4 |
| Respects and fosters mentee’s independence,20, 22 creativity, and uniqueness4 | Takes leadership roles and is willing to act independently, with minimal direct supervision23  Exercises independence (residents/fellows need opportunities to act independently, with minimal direct supervision, and to take leadership roles)23 |
| Shares with mentee the success and benefits of products and activities | Has high job investment |

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**SUGGESTED READING:**

Levinson, D. J., Darrow, C. N, Klein, E. B., Levinson, M. (1978). *Seasons of a Man's Life*. New York: Random House.

Souba, W. (2000). The essence of mentoring in academic surgery. *J Surg Oncol*, 75, 75-79.

Sutkin G., Wagner, E., Harris, I., Schiffer, R. (2008). What makes a good clinical teacher in medicine? A review of literature. *Acad Med* , 83, 452-466.

## Mentoring Toward Expert Practice

Expert practitioners are thought to “do something better,” because they know how to do the “right thing at the right time,” and thereby “provide better care.” (Rothstein, 1999)

Expert practice is what we are all striving towards and assisting our residents towards on their journey. One critical note when selecting and training mentors as well as teaching residents is that years of experience is not the key criterion for being an expert and mentor but these concepts are multidimensional.

Clinicians involved with developing residency programs frequently struggle with fully understanding the concept of mentoring within the context of residency education. Many of these clinicians have served as clinical instructors for entry level physical therapy students, and wonder how being a mentor might differ from this more familiar role.

|  |  |
| --- | --- |
| **Student** | **Resident** |
| * Goal is to move toward “entry-level” with focus on foundational behaviors and practice | * Goal is to move them toward expert practice building upon their foundational knowledge |
| * Need close supervision to abide by state and regulatory laws/rules | * Licensure not an issue so supervision corresponds to need only |
| * Guidance needed for learning as they may not know what they don’t know | * Residents take initiative to guide mentorship needs |
| * Assist them in learning basic skills, knowledge, clinical reasoning | * Assist them in learning more advanced skills with focus on facilitating advancing skills and clinical reasoning * Assist in developing patterns and becoming more intuitive |
| * Students have “clinical instructors” * As the student advances to entry level the relationship can transition to mimic mentor/resident. | * Residents have “mentors” |

The table below outlines five levels of resident’s clinical development and suggested teaching strategies mentors can utilize.

|  |  |
| --- | --- |
| **Level of Resident’s Clinical Development** | **Teaching Implications** |
| **Novice**   * Rule Driven * Use analytic reasoning and rules to link cause and effect * Little ability to filter or prioritize information. Difficulty with seeing the big picture. | **Novice**   * Help the learner to organize his/her knowledge. * Point out connections between history and physical findings. * Help them eliminate irrelevant information. * Identify discriminating data/features. |
| **Advanced Beginner**   * Sorts through information to decide what is relevant based on past experience. * Uses both analytic reasoning and pattern recognition to solve problems. * Able to abstract from concrete and specific information to more general aspects of the problem. | **Advanced Beginner**   * Exposure to cases to build illness scripts. * Work from common cases to uncommon cases. * Verbalize hypothesis setting. * Coaching is important in helping to attend to meaningful data. |
| **Competent**   * Feels a higher level of responsibility due to emotional buy-in. * More clinical experience allows for a mix of methodological and analytic reasoning to pattern recognition of common clinical problems. * Sees the big picture. * Complex or uncommon problems requires reliance on analytic reasoning. | **Competent**   * Balance supervision with autonomy. * Hold accountable for decisions. * Needs to see breadth and depth of cases. * “Good intern” not a good senior resident.   *\*Moving towards forward thinking* |
| **Proficient**   * Past experience allows for the reliance on pattern recognition of patient presentation. The clinical problem solving seems intuitive. * Uses methodological and analytic reasoning for the management of problems. * Comfortable with evolving situations. Capable of moving from a known to an unknown situation. * Can live with ambiguity. | **Proficient**   * Work alongside and be mentored. * Important to engage in critical self-reflection to “slow down and find evidence/seek help.” * Trust intuition and know limits. |
| **Expert**   * Thought, feeling, and action align into intuitive problem recognition and intuitive situational responses and management. * Is open to NOTICE the unexpected. * Is clever. * Is perceptive in discrimination features that do not fit a recognizable pattern. | **Expert**   * Keep the expert challenged. * Apprentice with a master to model skills. |
| **Master**   * Exercises practical wisdom. * Moves beyond the big picture and sees a bigger picture of the culture and context of each situation. * Has a deep level of commitment to the work. * Has a great concern for right and wrong decisions (fosters emotional engagement). * Is intensely motivated by emotional engagement to pursue ongoing learning and improvement. * Reflects in, on, for action. | **Master**   * Self-motivated to engage in lifelong learning and practice improvement. * Habitually engaged in a plan-do-study-act cycle. |

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**References:**

Carraccio, C.L., Benson, B.J., Nixon, J., Derstine, P.L. (2008). From the educational bench to the clinical bedside: translating the Dreyfus Development model to the learning of clinical skills. *Acad Med*, 83, 761-767.

Jensen, G.M., Gwyer, J., Hack, L.M., Shepard, K.F.(2007). *Expertise in Physical Therapy Practice.* (2nd ed). St. Louis, MO: Saunders Elsevier.

Jensen, G.M., Gwyer, J., Shepard, K.F., Hack, L.M. (2000). Expert practice in physical therapy. *Phys Ther*, 83, 28-43.

Rothstein, J.M. (1999). Foreword II. In: Jensen, G.Mm, Gwyer, J., Hack, L.M., Shepard, K.F(eds). *Expertise in Physical Therapy Practice*. Boston, MA: Butterworth-Heinmann.

Tichenor, C.J. (2010). *The Future of Physical Therapy: Survive, Flourish and Contribute*. Alexandria, VA: American Physical Therapy Association.

## Advancing Clinical Reasoning

*“We as professionals cope with the uncertainties by looking beyond the science – our practice is a blend of the art, craft and technology in combination with the science” (Higgs and Jones, 2000)*

Clinical reasoning is defined as the thinking and decision making process associated with clinical practice. Often, residents focus on practice techniques and insufficient time is devoted to clinical reasoning and patient management skills. (Shepard and Jensen, 2002) Facilitating the advancement of a resident's clinical reasoning skills is a key competency to being an effective mentor.

Clinical reasoning involves the integration of cognition, knowledge and metacognition

* Cognition- the process of acquiring knowledge by the use of reasoning, intuition or perception
* Knowledge- possession of information, facts, ideas, truths or principles
* Metacognition- “the use of different strategies for thinking more deeply about [your] thinking or clinical reasoning” (Higgs and Jones, 2000)
* Monitor the thinking processes and conclusions
* Detect relationships and inconsistencies between clinical data and clinical patterns
* Reflect on the soundness of observations and conclusions
* Critique the reasoning process itself – what have I missed? What else could this be?
* Consider societal, cultural beliefs, clinical knowledge

There are three primary methods of clinical reasoning. Experienced clinicians utilize all three methods at appropriate times.

1. Hypothetico-deductive (HDR)- develop hypothesis early from existing knowledge, association and experience.
   1. Further questioning and examination are geared towards supporting or refuting hypothesis
   2. Central to the data-gathering process and interpretation of the data in an evaluation
2. Pattern recognition- a particular combination of symptoms and findings can strongly suggest a diagnosis (e.g., tremor, bradykinesia, and rigidity and Parkinson disease)
   1. Faster and more efficient than HDR
   2. Essential to further development of clinical knowledge base
3. Pathognomonic signs and symptoms- particular finding almost guarantees certain diagnosis (e.g., Gower’s sign and Duchenne muscular dystrophy)

|  |
| --- |
| **How does clinical reasoning progress from novice to expert practitioner?**   * Knowledge becomes multidimensional. * Patients provide an important source of knowledge. * Knowledge of clinical specialty is key to evaluation. * Knowledge evolves with reflection. * Metacognition improves. * Practitioner more willing to take risks, take challenges and admit when they do not know. * Practitioner collaborates more with patient and family. * Practitioner is more focused on patient function and expectation rather than diagnosis. * Listening is improved. |

Mentor role to facilitate advancement in clinical reasoning form HDR to the use of all three type of clinical reasoning as needed.

* Help a resident be aware of biases that affect clinical reasoning:
  + Representativeness bias- overestimating the similarity between people or events or giving undue weight to small samples
  + Availability bias- attribute too much weight to easily available information
* Consider the context for clinical reasoning
  + Personal factors with the patient
  + Multi-faceted context of patient’s clinical problem
  + Health care setting
  + Personal and professional framework of clinician
* Facilitate clinical reasoning:
* Gathering objective data
  + Assist a resident in prioritizing tests and measures based on subjective data.
  + Guide the resident in determining relationships between symptoms to identify the number of separate problems.
* Correlating subjective and objective data
  + Guide a resident to correlate data, rule out/in tissue or systems affected.
  + Prioritize problems.
  + Formulate hypotheses to devise Plan of Care (POC).

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**References:**

Higgs, J., Jones, M. (2000). *Clinical Reasoning in the Health Professions* (2nd ed). Woburn, MA; Butterworth Heinemann.

Shepard, K.F., Jensen, G.M. (2002). *Handbook of Teaching for Physical Therapists* (2nd ed). Woburn, MA; Butterworth Heinemann.

## Reflection

The role of a mentor is to guide a resident through the self-reflection process. That is to assist residents’ in their ability to continually revise and expand knowledge and clinical reasoning skills through reflective practice. An ability to self-monitor is critical to learn from experience.

### Three types of reflection (Schon, 1987)

* Reflection *in action:* in the midst of action, while it is occurring
* Reflection *on action:* after the fact
* Reflection *for action:* in anticipation of the future
  + Schon contends that this reflection and more procedural knowledge is what distinguishes excellent from average practitioners.
  + Expert practitioners have incorporated the first two whereas the novice practitioner utilizes primarily the third.

Mezirow (1981) states the act of reflection is not simply stopping to think and problem-solve or plan for future action based on what one already knows; rather, the process requires that one reflect on the content, process, and premise underlying the problem or situation, in an attempt to make meaning of the total experience.

* Mezirow’s concept of reflection is particularly critical to physical therapy education, since the development of a professional identity goes beyond technical knowledge and skill to include the development of more abstract constructs such as critical thinking and professional values, attitudes, and beliefs. Cross states that for any experience to have lasting meaning, it must be followed by a period of reflection – mere involvement is not enough.

### Skills needed for reflective practice:

* Self-awareness
* Ability to recall events
* Ability to challenge assumptions
* Ability to integrate new knowledge
* Evaluation to make judgments on the outcome and the future

**Structure is necessary**

* Analyze weekly supervision feedback/forms
  + Areas of strength/gaps?
  + How has patient interaction changed?
  + Strategies for change?
* Role play patients with colleagues
* Record “clinical pearls” after each mentoring session
  + Practical knowledge
  + Effective teaching method

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**References:**

Higgs, J., Jones, M. (2000). *Clinical Reasoning in the Health Professions* (2nd ed). Woburn, MA; Butterworth Heinemann.

Mezirow, J. (1981). A critical theory of adult learning and education. *Adult Educ*, 32, 3-24.

Osterman, K.F., Kottcamp, R.B. (1993). *Reflective Practice for Educators*. Newbury Park, CA: Corwin Press, Inc.

Schon D. (1987). *Educating the Reflective Practitioner.* San Francisco, CA: Jossey Bass.

Tichenor, C.J. (2010). *The Future of Physical Therapy: Survive, Flourish and Contribute*. Alexandria, VA: American Physical Therapy Association.

## 

## 5 Microskills for Clinical Teaching **(**Neher et al., 1992)

1. **Get a Commitment**
   1. Guide the resident to discuss what they believe the issue is in the patient situation.
   2. Refrain from offering an opinion of the situation.
   3. Help the mentor to diagnose the resident’s learning needs.
   4. Examples:
      1. What do you think is going on with this patient?
      2. What other types of information do you feel are needed?
      3. What would you like to accomplish in this visit?
      4. Why do you think the patient has been non-compliant?
2. **Probe for Support Evidence**
   1. Ask the resident for the evidence that supports his/her opinion.
   2. Ask what other choices were considered and what evidence supported or refuted those alternatives.
   3. Refrain from offering an opinion of the situation.
   4. Query the residents in order to reveal the resident’s problem solving ability and identify gaps, allowing the mentor to hone in on problem areas.
   5. Examples:
      1. What findings brought you to your conclusion?
      2. Were there other areas you considered?
      3. What questions are arising in your mind?
      4. What are the key features of this case?
3. **Teach General Rules**
   1. Provide general rules, concepts or considerations and target them to the learner’s level of understanding.
      1. Teaching general rules and concepts rather than specific and detailed instructions helps learners to more easily apply information to new situations.
   2. Examples:
      1. When this happens, then do this….
      2. If the patient has these key features, these are key tests…or key interventions for patients with this type of presentation…
4. **Reinforce What the Resident Did Right**
   1. Find a comment on…
      1. The specific good work was (What I saw you do well was…) …
      2. The effect it had was…
   2. If good performance of skills is reinforced, competencies may be achieved.
   3. Examples:
      1. You were open-minded in developing your problem list…this will assist with…
5. **Correct Mistakes**
   1. Discuss what went wrong and how you can improve it in the future.
      1. Allow the resident to change/critique the performance first.
      2. Ensure the correction of the error is at an appropriate time and place.
   2. Avoid judgmental comments.
      1. Learners who are aware of mistake- need reinforcement and instruction on how to avoid repeating the problem in the future.
      2. Learners who are unaware of mistake- detail the negative effects as well as the correction.
   3. Examples:
      1. Next time you might try….

**Reference:**

Neher, J.O., Gordon, K.C., Meyer, B., Stevens, N. (1992). A five-step "microskills" model of clinical teaching. *J AM Board Fam Pract*, 5, 419-24.

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## Additional Mentoring References

Beck, S., Youngblood, P., Stritter, F.T. (1988). Implementation and evaluation of a new approach to clinical instruction. *J Allied Health*, 17, 331-340.

Bloom, B.S. (1956). *Taxonomy of Educational Objectives: The classification of educational goals. Handbook I: Cognitive Domain*. New York, NY: Longmans Green.

Bratt, M.M. (2009). Retaining the next generation of nurses: the Wisconsin Nurse Residency Program provides a continuum of support. *J Contin Educ Nurs*, 40, 416-425.

Edwards, I., Jones, M., Braunack-Mayer, A., Jensen, G. (2004). Clinical reasoning strategies in physical therapy. *Phys Ther*, 84, 312-335.

Epstein, R., Hundert, E. (2002). Defining and assessing professional competence. *JAMA*, 287, 226-235.

Helgeson, K., Smith, A.R. Jr. (2008). Process for applying the *International Classification of* *Functioning, Disability and Health* model to a patient with patellar dislocation. *Phys Ther*, 88, 956–964.

Hendrick, P., Bond, C., Duncan, E., Hale, L. (2009). Clinical reasoning in musculoskeletal practice: students’ conceptualizations.*Phys Ther*, 89, 430-442.

Henry, J.N. (1985). Identifying problems in clinical problem solving. *Phys Ther*, 65, 1071-1074

Jones, M.A. (1992). Clinical reasoning in manual therapy. *Phys Ther*, 75, 875-884.

Handelsman, J. (2005). Mentoring: learned, not taught. From *Entering Mentoring: Training Scientist Mentors.* Madison, WI: Howard Hughes Medical Institute.

Resnick, L., Jensen, G.M. (2003). Using clinical outcomes to explore the theory of expert practice in physical therapy. *Phys Ther,* 83, 1090-1106.

Escorpizo, R., Stucki, G., Cieza, A., Davis, K., et al. (2010). Creating an interface between the *International Classification of Functioning, Disability and Health* and physical therapist practice. *Phys Ther*, 90, 1-11.

Rothstein, J.M., Echternach, J.O., Riddle, D.L. (2003). The hypothesis-oriented algorithm for clinicians II (HOAC II): a guide for patient management. *Phys Ther*, 83, 455-70.

Rundel,l S.D., Davenport, T.E., Wagner, T. (2009). Physical therapist management of acute and chronic low back pain using the World Health Organization’s *International* *Classification of Functioning, Disability and Health*. *Phys Ther*, 89, 82–90.

Sackett, D.L., Straus, S.E., Richardson, W.S., et al. (2000). Evidence-Based Medicine: How to Practice and Teach EBM (2nd ed.). Edinburgh, Scotland: Churchill Livingstone Inc.

Supiano, M.A., Fantone, J.C., Grum, C. (2002). A web-based geriatrics portfolio to document medical students' learning outcomes. *Acad Med*, 77, 937-938.

Zachary, L. J. (2000). The mentor's guide: Facilitating effective learning relationships. San Francisco: Jossey-Bass Publishers.

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## Mentoring Session: Preparation and Feedback Form

This form is intended to help the resident prepare for a mentoring session by self-identifying a specific learning need that he / she might have that relates to a patient / client. The resident fills out the first page of this form in advance of the session, and gives it to the mentor who will be observing the patient care session. In this way, the mentor has a sense of what to expect during the session. Following the session, the mentor provides written feedback to the resident using the second half of this form.

This form is especially helpful in the early part of a residency program, as it assists the resident in focusing on what he/ she knows or doesn’t know. It may not be reasonable to use it for every mentoring session, depending on the other assignments required of the resident and the mentor. It could be modified in a variety of ways to address individual learning needs. For example, it may be more helpful to require the resident to ask a PICO question related to a specific patient case, as this would reinforce the use of the steps of EBP. Programs may also find it helpful to require the resident to write a synopsis of the session, indicating the patient-related actions he / she will take resulting from the mentor’s feedback.

See also Appendix B in the Mentoring Handbook for another example of a Mentoring Preparation Form.

### Mentoring Session: Preparation and Feedback

Resident: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date of Mentoring Session:\_\_\_\_\_\_\_\_\_\_

Mentor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mentoring occurred in the following clinical setting:

\_\_\_Inpatient rehabilitation unit \_\_\_Outpatient rehabilitation center

\_\_\_Acute care hospital \_\_\_Other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Patient Initials:

Diagnosis and Brief Description:

Plan for session: Please be specific. Include how this plan relates to the patient/client management model and the patient goals.

What do you want to gain from this mentoring session? (specific knowledge or skill)

### Mentor Feedback

This feedback is based on an evaluation of the written preparatory work submitted prior to the mentoring session AND on observations made during the session:

Specific areas in which the resident performs well:

Specific areas in which the resident would benefit from improvement / growth:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Resident Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mentor

Reprinted with permission of Cindy Zablotny, PT, DPT, MS, NCS: Unity Health System / Ithaca College Residency in Neurologic Physical Therapy

# An Introduction to Methods of Assessment and Ongoing Evaluation

There are many resources available to develop methods of evaluation and assessment. These include resources through the American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE), Academy of Education Residency and Fellowship Special Interest Group Think Tank and the Neurologic Physical Therapy Residency Curriculum Compendium. Other methods may be developed by a program to best meet their unique needs. Existing frameworks such as the *Neurologic Description of Residency Practice (DRP*) (2016), the *Guide to Physical Therapist Practice* (2001)*,* and the International Classification of Functioning, Disability and Health (ICF) (2001) may be utilized in the creation of evaluation documents, such as rubrics. A rubric is useful to provide clear guidelines on what constitutes successful completion of the exam, project, etc. (i.e., what is a passing or failing grade), when remediation would be necessary and how this process will occur.

In addition to identifying methods of assessment for the resident, a remediation policy and procedure must be developed in preparation for any academic or clinical deficiencies noted in the resident’s performance. This policy and procedure must be established prior to the start of the residency program and reviewed with each resident prior to entry into the program. Important components of an effective remediation policy include a detailed list of those that are involved in the remediation process, examples of behaviors or actions that may instigate this process, the conditions that should be included in a remediation plan (e.g. specific areas requiring development, objective methods of assessing these conditions/behaviors, established time frames for completion, etc.…), and clarification of termination of employment (i.e. if the resident is terminated from the residency program are they also terminated from the institution). Please refer to the sample formal remediation policy included below for additional information.

**References**:

American Physical Therapy Association. (2004). *Neurologic Physical Therapy: Description of Specialty Practice*. Alexandria, VA: American Board of Physical Therapy Specialties.

American Physical Therapy Association. (2001). Guide to Physical Therapist Practice (2nd ed.). *Phys* Ther, 81, 9–744.

World Health Organization. (2001). *International Classification of Functioning, Disability and Health: ICF*. Geneva, Switzerland: World Health Organization.

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## Sample Remediation Policy

Neurologic Physical Therapy Residency Program

Institutional Guidelines for Evaluation, Remediation and Discipline of Residents [sample]

I. Purpose:

Provide consistency in procedure for evaluation, remediation, and discipline of Residents. The process outlined will serve as a guide to the Program Coordinator in the evaluation, remediation, or discipline of Residents. The guidelines describe the procedures by which Residents are evaluated and disciplined; how identified academic and clinical deficiencies are remediated; and the grievance process by which Residents can appeal an adverse reaction taken by the Program Coordinator of the Residency Program.

II. Policy:

This institution maintains a consistent process of evaluation, remediation and discipline of all physical therapy residents (hereafter referred to as “Residents”) enrolled in a post-professional physical therapy residency program (hereafter referred to as “Residency Program”). A process has been identified for constructive remediation or discipline of Residents who are not meeting the Residency Program’s expectations. Residents will be informed of how and why their performance is not acceptable and how the Resident must improve to meet the Residency Program’s standards.

III. Definitions:

Resident: A graduate of an accredited physical therapy program, licensed in the state of XXXXX, holding the relevant professional credentials (PT, LPT, MPT, MSPT, or DPT), and formally enrolled in a post-professional residency program.

Program Coordinator: A qualified physical therapist who meets the American Physical Therapy Association’s (“APTA”) qualifications and who is appointed by the institution. The Program Coordinator has the primary responsibility for the organization, implementation, and supervision of all aspects of the Residency Program.

Adverse Action: A decision by the Program Coordinator to issue a formal reprimand or to dismiss a Resident. This may include one of the following conditions:

* Issues with patient safety
* Inappropriate behaviors exhibited within the workplace
* Poor academic performance on written/patient exams
* Poor performance on residency projects
* Criminal activity
* Termination of or failure to obtain a physical therapy license

Remediation: Plan developed by the Program Coordinator to correct deficiencies identified in a Resident’s academic and/or clinical performance. This plan should include the following stipulations:

* Specific areas requiring development/improvement
* A well articulated set of conditions/behaviors that would constitute a successful remediation
* Objective methods of assessing these conditions/behaviors
* Established time frames for completion of required tasks and/or acceptable behavior change
* Available resources (counseling, etc) to assist with the remediation plan
* Delineating actions the resident may take if the remediation plan is unsuccessful

IV. Residency Program Committee

1. Committee Members

The Program Coordinator has designated a Residency Program Committee(“RPC”) consisting of the Program Coordinator, Therapy Clinical Manager, Physical Therapy Team Leaders of the Neurologic Disease Service and Brain Injury Center, Center Coordinator of Clinical Education (“CCCE”), and residency faculty members chosen by the Program Coordinator. The Program Coordinator will serve as Chair of the RPC.

1. Committee Procedures for Remediation

It is the responsibility of the committee to review the academic and clinical performance of a Resident when the Resident’s academic advisor, mentor, and/or the Program Coordinator note a deficiency. These meetings may be convened on an ad hoc basis at the request of the Program Coordinator to review a Resident’s poor academic performance, a critical incident in patient care, or a specific disciplinary issue that occurs.

During the periodic review the committee will evaluate some or all of the following documents:

* + Written report of previous periodic review meeting (if one exists)
  + Written evaluations
  + Documentation of procedural skills
  + Classroom/lab attendance
  + Written and practical examination scores
  + Quality assurance issues
  + Written documentation
  + Disciplinary/Incident reports
  + Any other relevant data brought to the RPC

The Program Coordinator will maintain a written report of each meeting that summarizes the performance of the Resident and specifies recommendations for remediation of academic and/or clinical deficiencies. The Program Coordinator will notify residents of RPC findings during regularly scheduled meetings. The Program Coordinator will notify each Resident of adverse actions or remediation plans in a timely manner and in writing. The Program Coordinator, Therapy Coordinator, and Resident will sign a summary of the remediation plan after a thorough review, discussion, and consideration of the Resident’s suggested amendments. The Program Coordinator and Therapy Coordinator will meet on a regular basis with the Resident to determine if the objectives identified within the remediation plan have been met within the specified time frames. Assessment of the Resident may be conducted by any residency faculty deemed appropriate to do so based on the circumstances identified (e.g. academic faculty if academic performance is deficient, clinical faculty if clinical performance is deficient). These communications will become part of the Resident’s file. The remediation process is complete once the resident meets the acknowledged requirements.

V. Adverse Actions

Residents may be subject to disciplinary action or remediation for poor clinical and/or academic performance. Poor performance, as measured by the evaluation tools in use by the Residency Program, may result in adverse action against the Resident. Issues of poor clinical and/or academic performance are usually handled with remediation in an effort to attain a satisfactory level of improvement. Disciplinary issues are handled through the policies and procedures outlined by Human Resources.

1. Clinical and Academic Performance Adverse Actions
   1. Counseling:

A Resident may be subject to counseling regarding clinical and/or academic activity. Counseling may be conducted by the Program Coordinator or other designated staff members. Counseling will be documented in a written format and maintained in the Resident’s file.

Counseling is not reported after residency training and may not be appealed by the Resident.

* 1. Probation:

Poor clinical and/or academic performance may include a probationary period. The probation period is a defined period of time with specific objectives described and specific degrees of improvement required to successfully complete the probationary period. The period of time, objectives, and degrees of improvement are described in a written format to the Resident and maintained in the Resident’s file. Regularly scheduled meetings with the Program Coordinator are required during the probationary period. After the probationary period has been completed one of the following actions will occur:

* + 1. Probation will be successfully completed.
    2. Probation continued.
    3. Dismissal from Residency Program.

3. Dismissal:

A Resident’s failure to improve or satisfy the conditions of the probationary period may result in dismissal from the Residency Program. The Program Coordinator will confer with the RPC when dismissal is considered. The Program Coordinator must notify the Resident in person, as well as in writing, of the dismissal. A written record of the dismissal will be maintained in the Resident’s file and will be reported after Residency training.

VI. Grievance Procedure

Residents will follow the grievance procedure provided by the Human Resources Department (see attachment HR 001).

VII. Termination of Employment

Upon termination from the Residency Program the Resident will no longer be eligible for employment within the institution. Residents will follow the termination of employment procedure provided by the Human Resources Department (see attachment HR000).

By signing below, I acknowledge that I have read and understand the above policy and procedure.

RESIDENT\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE\_\_\_\_\_\_\_\_\_\_\_\_\_

PROGRAM COORDINATOR\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE\_\_\_\_\_\_\_\_\_\_\_\_\_

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## 

## Sample Case Report Grading Rubric



**CASE REPORT GRADING CRITERIA**

Case Report Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Resident’s Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please rate achievement of criteria by circling appropriate indicator on scale below.

**Introduction**

1. Identifies purpose and describes the focus of the case.

Fully met 4 3 2 1 Not met

2. Provides rationale for the importance of topic/focus

Fully met 4 3 2 1 Not met

3. Provides background information from the literature related to the purpose to facilitate understanding of the case, the clinical problem and the intervention.

Fully met 4 3 2 1 Not met

**Patient/Case Description**

1. Provides sufficient information about the case to allow identification of similar cases.

Fully met 4 3 2 1 Not met

2. Includes relevant medical and rehabilitation history, psychosocial and demographic data.

Fully met 4 3 2 1 Not met

3. Includes description of examination and tests/measures used with rationale & cites references.

Fully met 4 3 2 1 Not met

4. Validity and reliability of tests and measures are described and referenced.

Fully met 4 3 2 1 Not met

5. Medical and rehabilitation terms used in case description are operationally defined.

Fully met 4 3 2 1 Not met

6. Examination findings are presented in organized and comprehensive manner.

Fully met 4 3 2 1 Not met

7. Utilizes tables, figures and illustrations to organize data and complement case description.

Fully met 4 3 2 1 Not met

8. Evaluation, diagnosis, and prognosis are clearly explained and supported by the data presented. Fully met 4 3 2 1 Not met

**Intervention**

1. Provides plan of care, including physical therapy goals, time frame, and expected outcomes.

Fully met 4 3 2 1 Not met

2. Interventions are clearly described in detail (replicable), including mode/type, frequency, intensity, duration of treatment and progression, with references as appropriate.

Fully met 4 3 2 1 Not met

3. Describes clinical decision-making process and rationale for selected interventions or modification of ongoing interventions with reference support.

Fully met 4 3 2 1 Not met

4. Describes patient participation, tolerance and adherence with interventions or HEP.

Fully met 4 3 2 1 Not met

5. Utilizes effectively designed tables, figures and illustrations to summarize interventions.

Fully met 4 3 2 1 Not met

**Outcomes**

1. Provides objective examination data on patient outcomes consistent with purpose of the case.

Fully met 4 3 2 1 Not met

2. Utilizes reliable, valid and sensitive outcome measures appropriate to patient’s clinical diagnosis and functional status, with rationale and citations.

Fully met 4 3 2 1 Not met

3. Provides objective data regarding changes in functional abilities/limitations and participation abilities/restrictions.

Fully met 4 3 2 1 Not met

4. Relates outcomes to stated goals and interprets outcomes based on patient’s residual impairments, functional limitations and participation restrictions.

Fully met 4 3 2 1 Not met

5. Utilizes well designed tables, figures and graphs to summarize or display outcomes when appropriate

Fully met 4 3 2 1 Not met

**Discussion**

1. Links case to purpose and relates to the literature/evidence reviewed.

Fully met 4 3 2 1 Not met

2. Discusses theoretical basis for interventions and clinical decisions made with rationale.

Fully met 4 3 2 1 Not met

3. Critically reflects on interventions and patient outcomes, and discusses the strengths and weaknesses of the case management.

Fully met 4 3 2 1 Not met

4. Discusses potential factors influencing patient outcomes from a Systems perspective.

Fully met 4 3 2 1 Not met

5. Discusses learning that came about as a result of this case and relevance for future clinical practice.

Fully met 4 3 2 1 Not met

6. Discusses what this case adds to the literature and what further research questions need to be addressed relative to case purpose or case findings.

Fully met 4 3 2 1 Not met

7. Appropriately cites references to support explanations throughout the discussion section.

Fully met 4 3 2 1 Not met

**Manuscript Organization and Scientific Writing**

1. Uses correct grammar (including spelling, punctuation, constant tense, word choice, etc.) and person-first language.

Fully met 4 3 2 1 Not met

2. Well organized paper and thoughts are presented clearly with logically progression.

Fully met 4 3 2 1 Not met

3. Concise scientific writing style used throughout the manuscript and follows AMA guidelines.

Fully met 4 3 2 1 Not met

4. References are correctly and appropriately cited in text; reference list follows AMA guidelines.

Fully met 4 3 2 1 Not met

5. Recommended revisions were made in a timely manner and met resident/mentor set timelines.

Fully met 4 3 2 1 Not met

**Professional Presentation of Case Report**

1. Well designed and organized presentation of case report provided in Grand Rounds setting.

Fully met 4 3 2 1 Not met

2. Resident demonstrated effective speaking skills and pacing of presentation to professional audience.

Fully met 4 3 2 1 Not met

3. Resident demonstrated advanced knowledge and neurologic practice expertise relevant to clinical case report.

Fully met 4 3 2 1 Not met

4. Resident fielded questions from audience effectively demonstrating knowledge, depth and expertise pertaining to the case and its purpose.

Fully met 4 3 2 1 Not met

**Grading Rubric:**

**4 = Exceeds expectations 3 = Meets expectations**

**2 = Partially meets expectations 1 = Does not meet expectations**

**Section Scoring**: **Comments:**

Introduction= \_\_\_\_/12 pts

Case Description= \_\_\_/32 pts

Intervention= \_\_\_\_/20 pts

Outcomes= \_\_\_\_/20 pts

Discussion= \_\_\_\_/28 pts

Writing Style= \_\_\_\_/20 pts

Presentation= \_\_\_\_/ 16 pts

**Total Score**= \_\_\_\_\_/148 pts

**Score Interpretation:**

Pass, exceeding expectations =133-148 points (90-100%)

Pass, meeting expectations = 118-132 points (80-89%)

Does not meet expectations= < 118 points (< 80%)

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