

Case report writing in a Doctor of Physical Therapy Education program: A case study

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Abstract: Case reports are an established form of scholarship used for teaching and learning in medicine and health care, but there are few examples of the teaching and learning activities used to prepare students to write a case report. This report describes the implementation of two courses that prepare physical therapy students to write and disseminate a patient/client-centered case report. The first course is taught in a distance-learning format and is taken concurrently with a 12-week clinical experience where the student collects case data from a patient/client who consents to be the subject of the report. The second course is campus-based and supports the student's dissemination of the case report as a manuscript and oral and poster presentations. After three years, we have experienced widespread support from the students, patients/clients, and clinics. Factors that may have contributed to the students' positive experiences include course organization, student engagement, and support of the instructor, peers, and clinical community. This information can assist educators in all professional health care disciplines to establish or modify courses that prepare students to write case reports.

Keywords: college instruction, teaching methodology, experiential learning, course Design.

In health care disciplines, a case report is a detailed description of the clinical presentation, diagnosis, treatment, and outcomes of a patient (or case), often with an unusual or novel condition, to be shared for medical or educational purposes (*Dictionary*, 2010). In public health, case reports have been credited with showing how exposures and disease are related, such as the association of acquired immunodeficiency syndrome with sexual activity and severe acute respiratory syndrome with West Nile virus (Moore 2009). In clinical medicine Vandembroucke (2001) suggests the potential roles of case reports include recognizing and describing new diseases or rare manifestations of disease, detecting side effects of drugs, and medical education and audit. In physical therapy, case reports provide detailed descriptions of how therapists meet clinical, managerial, and educational challenges (Fitzgerald, 2007) and have been called the “currency of practice” (Rothstein, 2002, p. 1063).

Case reports are considered ideal vehicles for teaching scientific writing (Neely, 2008), but there are only a few published reports describing how students are prepared to write a case report. Perry (1998) required undergraduate students in epidemiology and public health to write a case report summarizing the evidence supporting one intervention used in the management of a patient. Mostrom (1999) described a multitrack model in physical therapy that offered students three “inquiry” options: an individual thesis, a collaborative research project, or a case report.

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Good (2009) reported his methods for having chiropractic students write a case report about a fictitious patient. Klos (1976) described an optional case writing project for students in psychology. However, these reports do not provide detailed descriptions of the strategies used to teach case report writing to students, nor do they report the student view of the experience. The purpose of this report is to describe the implementation and outcomes after three years of two courses that prepare students to write and disseminate a patient/client-centered case report. Although the methods were developed and applied in a physical therapy education program, the model could be adapted to any discipline interacting with patients/clients.

I. Background.

Prior to revising our curriculum in preparation for awarding the Doctor of Physical Therapy (DPT) degree, like many physical therapist education programs we required all students to complete a group research project. However, a number of changes in the education community in physical therapy informed our decision to offer writing a case report as an alternative scholarly project for students. First, there was a growing disenchantment for requiring students preparing for clinical practice to complete a research project. Rothstein (1993, 1998) argued that, as a profession of practitioners, it made more sense that student physical therapists be able to write a case report than to have participated in a research project, which, he argued, were often poorly conceived and supervised by faculty with inadequate research credentials. A second change was the evolution in physical therapy to a doctoring profession. In discussing the clinical doctorate, Threlkeld (1999) forecasted that doctors of physical therapy would be writing case reports among other new responsibilities. In moving to the DPT degree, some physical therapist education programs revised the research curriculum to integrate clinical decision making and evidence-based practice (Ross, 2004), or permitted different forms of scholarly projects, including case reports (Mostrom, 1999). Furthermore, the call for more case reports by peer-reviewed physical therapy journals (Childs, 2004; McEwen, 2004; Partridge, 2003; Rothstein, 1989, 1993, 2002; White, 2004) helped to legitimize case reports as a form of scholarship.

The primary objective for including case report writing in the DPT curriculum is to provide a reflective and scholarly activity that enables students to demonstrate attainment of the behaviors, skills, and knowledge that describe the expected performance of physical therapists at entry into the practice of physical therapy. A secondary objective is to prepare graduates to contribute to the scholarship of physical therapy by (a) writing a case report in accordance with the requirements of a professional journal, (b) disseminating the report as both oral and poster presentations. To achieve these objectives, the program included Case Report 1 (CR1) and Case Report 2 (CR2) in its new curriculum for the Doctor of Physical Therapy degree. The physical therapy faculty planned it so both the case report and research project options would require students to complete two, 2-credit courses, so the choice of a scholarship project would be based on their interests and goals and not on a difference in the number of courses or credits associated with each project. The author accepted responsibility for developing the course descriptions, schedules, objectives, learning activities, dissemination plans, grading rubric, and patient consent form.

A. Case Report I.

CR1 is a distance-education course offered concurrently with the students' second 12-week clinical practicum (CP2) in the sixth semester (beginning of the third academic year) of the DPT program. Course activities include reading and writing assignments that prepare students to collect data about a patient/client they select to be the subject of the case report. Any patient/client or management scheme that is infrequently encountered in practice or that has not been described in the literature may be the subject of the case report (Rothstein, 2002).

Communication with the clinic. Prior to Clinical Practicum 2, the academic program informs the clinical coordinator at each site that his or her student will be enrolled in CR1 along with the clinical practicum and will need to collect information about a patient/client in preparation for writing a case report. This information also is shared with the clinics through the program's *Clinical Education Handbook*. In addition, the student discusses the requirements for CR1 with his or her clinical instructor during orientation to the clinic.

Consent and confidentiality of protected health information. To protect the right to privacy (*Uniform Requirements*, 2010), the student obtains written consent from the patient/client, or his or her legally authorized representative using the consent form developed by the education program for this purpose, or the clinic's form, if one is available. The patient/client is informed that the student will assemble information from the medical history, physical therapy examination, and treatments to present as a case report at the university, and that it may be published or presented at a professional conference. The patient/client is assured that the case report is not research, no experimental therapies will be used, and the services recommended by the physical therapist or student physical therapist will be provided whether or not the person participates as a case report subject. To assure compliance with the Health Insurance Portability and Accountability Act (HIPAA) (*Understanding Health Information*, 2010), the student removes all protected health information from any patient/client records, forms, or notes before the information leaves the clinic. As an activity documenting the examination and treatment of a single patient, a clinical case report is a medical/educational activity that does not meet the definition of research – “a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge” (*Code of Federal Regulations*, 2010) – and therefore does not need to be reviewed by the university's Institutional Review Board for the Protection of Human Subjects.

Assignments. In the first three weeks of CR1, usually before identifying a patient/client, the students read selected articles about the value of case reports to physical therapy (Childs, 2004; Fitzgerald, 2007; McEwen, 2004; Summers, 2004; White, 2004), the framework of a case report (LaPier, 2004), and the requirements for preparing a case report for a professional journal (*Physical Therapy Information*, 2010). After selecting a patient/client, the student completes four assignments, based on the elements of the patient/client management model in physical therapy (*Guide to PT Practice*, 2003), which facilitate collecting and reporting information about the patient/client (Table 1).

Table 1. Writing Prompts to Facilitate Collecting and Reporting of Patient/Client Data.

<p>Assignment 1: Examination and Purpose</p> <ol style="list-style-type: none">1. What is the patient's chief complaint or problem? What is the medical diagnosis?2. State the reasons for referral to physical therapy.3. Provide pertinent information about the patient's medical and social history, living environment, social and health habits, functional status and activity level, and medications.4. Provide pertinent information from the systems review.5. Construct a Table that reports the results of the tests and measurements.6. Provide citations on the reliability and validity of the individual tests and measures.7. Explain why you selected this patient/client for a case report. How will your case report add to the body of knowledge in physical therapy?8. State the purpose of your case report.
<p>Assignment 2: Evaluation, Diagnosis, and Prognosis</p> <ol style="list-style-type: none">1. Discuss your interpretation of the information you obtained in the examination (history, systems review, tests and measurements).2. What are the patient's impairments, functional limitations, and disabilities?3. Explain how any comorbidities may affect prognosis, goals, expected outcomes, and plan of care.4. What is the patient's physical therapy diagnosis from the <i>Guide to Physical Therapist Practice</i>?5. What is the patient's prognosis for improvement with physical therapy? Provide a rationale for your prognosis that is based on theoretical argument, clinical experience, or previous research.6. What are the short-term and long-term or discharge goals for physical therapy?7. What goals and outcomes does the patient (or family) have for physical therapy?
<p>Assignment 3: Plan of Care and Interventions</p> <ol style="list-style-type: none">1. Outline the physical therapy plan of care for: coordination, communication, and documentation, patient/client related instruction, and procedural interventions.2. Explain your decision-making process that led from evaluation, diagnosis, and prognosis to the plan of care and the selection of the interventions.3. What interventions were provided?4. Describe the chronology of interventions and explain the rationale for any changes over time.5. Provide a rationale for the interventions based on theoretical argument, clinical experience, or previous research.6. Explain the rationale for any changes that were made in the intervention.
<p>Assignment 4: Outcomes</p> <ol style="list-style-type: none">1. Estimate the number of physical therapy treatment sessions the patient received.2. Include Table(s) of the results of the most relevant tests and measures or outcome measures made at admission and discharge from PT (or initial and final measures).3. Include any Figure(s) (e.g., photographs, etc) or Appendix you plan to include in the report.

B. Case Report 2.

CR2 is a campus-based course that meets for two hours a week in the fall semester after CP2. Class activities include lectures and discussions that support writing the case report manuscript, a

workshop on making a poster, peer review meetings, and meetings with the instructor. An instructor-developed grading rubric, which considers credibility, completeness, accuracy, organization, grammar, punctuation, spelling, and clarity of expression, is used to evaluate the manuscript. (Appendix)

Peer review. During two class periods, pairs of students use the grading rubric to review and provide feedback on two draft manuscripts. A draft is operationally defined as a manuscript that contains all the required elements, follows the organization of a case report, and expresses ideas in a consistent style that is grammatically appropriate for professional communication including correct spelling and punctuation, clear word choice and sentence structure, and correct scientific and medical terminology. The first draft includes the Title Page, Background and Purpose, Patient History and Review of Systems with Clinical Impression, Examination with Clinical Impression, and References. The second draft includes the Intervention, Outcome, Discussion, References, Tables, Figures, Appendices, and Abstract. The goal of the peer review is for students to evaluate their partner's paper from the perspective of the instructor (Rieber, 2006). Using the grading rubric as a checklist ensures that each draft is reviewed by the same criteria and the author receives feedback on all aspects of the manuscript.

Instructor review. After each peer review session, the student has one week to revise the draft manuscript before submitting it to the instructor for grading. After grading the draft, the instructor meets individually with each student to provide detailed written and oral feedback based on the grading criteria. The final course grade is the weighted average of all the graded activities: 75% from the final manuscript and 25% from the drafts of the manuscript and slides for the oral and poster presentations. The oral and poster presentations are graded pass-fail.

Dissemination. In addition to writing a "full" traditional case report manuscript (*Physical Therapy*, 2010), students make oral and poster presentations, modeled after presentations at meetings of the American Physical Therapy Association (APTA), at the college's Scholarship and Research Symposium. Also, students are encouraged to submit an abstract of the case report for presentation at one of the professional meetings of the APTA.

II. Methodology.

The twenty-four students who elected to write a case report during the first three years of the DPT degree program participated. To assess the students' perceptions of the course design and delivery, both quantitative and qualitative information were collected from the college's end-of-semester course and instructor evaluation forms and from student responses to open-ended questions about the peer review aspect. The students' responses to the college evaluations and peer review questions were anonymous. To assess the effect of instructor feedback on student writing, the differences in students' scores on the two draft manuscripts and the final manuscript were analyzed by a repeated measures analysis of variance followed by paired t-tests for multiple comparisons using Systat 11.0 for Windows statistical software. The project was exempt from oversight by the university's Institutional Review Board for the Protection of Human Subjects.

III. Findings.

The support for the case report has been universal among students, clinical instructors, and patients/clients. Although students have other assignments during their clinical, no one reported these hindered data collection for the case report, or vice versa. No clinic has expressed any

concerns about students' data collection during the clinical and every patient/client asked to be the subject of a case report has agreed. The subjects of the case reports reflect the diversity of patients/clients who receive physical therapy services in hospitals, inpatient rehabilitation centers, outpatient clinics, and skilled nursing facilities (Table 2).

Table 2. Selected Titles of Student Case Reports.

<p>Inpatient setting</p> <p>A Function-based Approach in the Physical Therapy Management of a 78 year-old Patient with Incomplete Spinal Cord Injury</p> <p>Energy Conservation for a 78 year-old Male with End Stage Idiopathic Pulmonary Fibrosis</p> <p>Functional and Resistance Training Following Shunt Revision in 7-year-old Male with Type I Chiari Malformation</p> <p>Functional Training and Interdisciplinary Discharge Planning for a Patient with Parkinson's Disease</p> <p>Inpatient Physical Therapy for a 20-year-old Patient Following Rotationplasty</p> <p>Mobility Training for a Patient with Bilateral Oculomotor Nerve Paralysis and Hemiparesis Following a Stroke</p>
<p>Outpatient setting</p> <p>A Comprehensive 12-week Physical Therapy Plan of Care after a Calcaneal Osteotomy to Correct Cavovarus Foot Deformity</p> <p>A Comprehensive Physical Therapy Intervention Plan Following a Bimalleolar Fracture with Open Reduction Internal Fixation</p> <p>Early Physical Therapy Intervention for a Work Related Upper Trapezius Strain with Neurologic Symptoms</p> <p>Outpatient Rehabilitation Following Total Shoulder Arthroplasty in a Young Man with a History of Locked Posterior Shoulder Dislocation</p> <p>Physical Therapy Management of a Runner with a Chronic Adductor Strain and a True Leg Length Discrepancy</p>

A. Course and instructor evaluations.

Eighty-nine per cent and 75% of eligible students completed evaluations for the course and instructor for CR1 and CR2, respectively. All students responding to the course evaluations strongly agreed or agreed that the objectives of CR1 and CR2 were clear, the pace of the courses was appropriate, and that assignments were useful in developing or enhancing relevant practical skills. Of the students who provided an overall course rating for CR1, 75% rated it as excellent

or above average and three rated it as average. For CR2, 94% rated CR2 as excellent or above average and 6% rated it as average.

All students who provided an overall rating for the instructor strongly agreed or agreed he was well prepared, presented the material clearly and in an orderly and logical manner, inspired confidence in his knowledge of the subject, showed respect for the questions and opinions of the students, and displayed genuine concern with the student's progress. Eighty-three percent of the students, who rated the instructor for CR1, rated him excellent or above average; 17% rated him average. Of the students who rated the instructor for CR2, 94% rated him excellent or above average and 6% rated him average.

B. Peer review.

All but one student reported the peer review process helped them write the case report manuscript and prepare their presentations. Student anonymous responses to open-ended questions about the peer review process are included in Table 3.

C. Effect of instructor feedback on student writing.

The mean (SD) grades for the three drafts of the case report were 86.0 (7.3), 88.2 (8.0), and 97.8 (1.4), respectively. Overall, there was a curvilinear increase ($F(1, 23) = 6.5, p = 0.02$) in scores from the first draft to the final draft. The mean increase of 2.2 points [95% CI = - 1.2 to 5.7] from draft 1 to draft 2 was not statistically significant ($p = 0.19$). The increase of 11.8 points from draft 1 to the final draft [95% CI = 9.0 to 14.7] and the increase of 9.6 points from draft 2 to the final draft (95% CI = 6.5 to 12.8) were statistically significant ($p < 0.001$).

IV. Discussion.

This is the first report to describe the teaching and learning activities and outcomes of courses in a physical therapy education program that prepare students to write and disseminate a patient/client centered case report. The course and instructor evaluation data indicate the overall design and delivery of CR1 and CR2 are successful and well received by students. As with any single case study, the findings cannot be generalized to students in other health care education programs, nor do they suggest a causal relationship between the teaching and learning activities employed and the student outcomes. Nonetheless, the findings suggest a number of themes that can stimulate further study and have implications for teaching case report writing in any discipline.

A. Systematic approach and course organization.

Many students identified the systematic, step-by-step process used to collect patient/client data to write the manuscript, and to prepare the oral and poster presentations as important to their overall learning experience. One student commented the "practical, organized way that paralleled organization of the plan of care in the clinical setting" was most valuable during CR1. Several students said the reading and writing assignments helped them understand the structure of a case

Table 3. Students' Comments about Peer Review.

<p>Describe the aspects of the peer review that you found to be helpful</p> <p><i>I think having someone else look at your paper and be able to determine what can be added or removed is helpful. I have a difficult time finding areas that need more detail/clarification.</i></p> <p><i>It was helpful to have someone else to problem solve with and discuss other options. For example, we discussed our introductions quite a bit and this process validated my thoughts but also helped me find ways to cut it down and make changes.</i></p> <p><i>I always think it's a good idea to let someone else read your paper for sentence structure, grammar, and spelling since it is hard to pick up those errors in your own writing.</i></p> <p><i>I found different ways to approach problems that I had encountered while writing.</i></p> <p><i>The peer review sessions and individual work sessions with the instructor provided a good amount of feedback to help finalize the paper, presentation, and poster.</i></p> <p><i>It was also great to have someone else read your work. I find that I often overlook little things that could be changed because it is my own work.</i></p> <p><i>I thought it was a productive use of time. It is good to have someone else look at your paper because it is sometimes hard to think outside your own box.</i></p> <p><i>The outline and the grading sheet provide excellent guidance on what the case report should contain. Meeting with you is an excellent supplement to the peer review because it provides that added expertise on case reports.</i></p>
<p>Describe the aspects of the peer review process that were not helpful to you</p> <p><i>Didn't find peer review helpful; would have preferred open time on project.</i></p>
<p>Provide any ideas you have to improve the peer review process</p> <p><i>I feel I do not have enough expertise on case reports/journal articles/manuscripts. I felt comfortable suggesting changes with grammar, spelling, formatting, and some of the content but I wish I had a better understanding of what a strong case report really is. I feel that this is something that will come with time and that you would not be able to teach to us in advance.</i></p> <p><i>The only aspect I can think about to improve the peer review process is to have more communication with the other students to ask questions or get feedback about our ideas. We did that a little with another group and I think it was helpful to us as well as to them.</i></p> <p><i>Maybe have a "check in before you leave" as a group to hear answers to questions that each person has asked you and listen to problems other students encountered.</i></p> <p><i>I don't think I would change anything. I would say to have more people read and be involved in the</i></p>

review process, but I also know I would feel uncomfortable being forced to do that

report and prepared them for collecting data from their patient/client. One student wrote, “The independent nature of the course helped me continue to develop my management and organizational skills, as well as to develop my ideas on the case.” Two students commented that the second of the two draft manuscripts was more involved than the first and recommended that they be reorganized to equalize the amount of writing between the two.

B. Instructor support.

A number of attributes of the instructor appear to be important to students’ learning and satisfaction with writing the case report. Preparedness, orderly, logical, and clear presentations, respect for students’ questions and concern for student progress were reported as characteristics of the instructor that were most valuable to their overall learning experience. Many students commented that the instructor’s responsiveness, well-thought, timely and supportive feedback, knowledge, and experience were important to their overall learning experience. For CR2, many students noted the scheduling of deadlines, due dates, and individual meetings with the instructor helped keep them on track and manage the workload. These comments reflect Sellheim’s (2003) findings that faculty enthusiasm, respectful and positive attitudes toward students, concern with helping students to understand, valuing students’ input, and accessibility all contribute to a “positive presence” that enhances student learning. Furthermore, evidence that writing improves when students have a better understanding of how they are being assessed (Beason, 1993) and are made aware of their strengths and weaknesses (Higgins, 2002) is found in the significant improvement in the average grade from drafts one and two to the final manuscript.

C. Student engagement.

Students are successful when their writing is personally meaningful, practical, or purposeful beyond the classroom (Haas, 2007). Writing and disseminating a case report requires the student to be actively involved in information gathering and problem solving, to make explicit clinical decision-making, to consult the literature for information related to their plan of care, and to demonstrate skills in professional writing and presentation. Because the students perceived the assignments to be directly related to their professional roles and responsibilities, their writing was authentic. One student said, “Writing a case report is an important aspect of the DPT degree.” Another said, “The opportunity to write and present a case report was valuable to my overall learning experience in the program.” Not every student was as enthusiastic about the poster presentation, however, and two students recommended it not be required.

D. Peer review.

Following Childs’ (2004) recommendation that colleagues critically review case reports prior to submission for publication, peer review has been a valuable way for students to provide feedback and suggestions to each other before submitting the paper to the instructor. Only one student reported the peer support process used in CR2 was not helpful, preferring instead to use the time working privately.

Peer support is widely used to help students at every level improve their writing (Armstrong, 2008; Haas, 2007; Rieber, 2006; Topping, 2003). First, the author has an

opportunity to edit and improve the work before it is graded by the instructor. As one student stated, "Having this before we meet one on one with you makes us write our sections in advance and then have ample time to look at it again and make corrections before it is due (improves the quality of our draft before meeting with you)." The same student added, "I think it is a good idea to have it structured into class time." Second, the discussion between the author and reviewer cause both to rethink the assignment, which leads to improvement in both their papers (Haas, 2007). One student described the experience this way, "I found the peer review much more helpful than I thought it was going to be. Afterwards, my partner and I discussed how each of us was going to use some of each other's ideas in our own paper...the peer review process is definitely going to be a key part of writing a quality case report." Using the grading rubric during the peer review session seemed to be helpful. One student said, "It was good to have the grading sheet so the reviewer can say whether or not you missed some sections or should elaborate on others." Lastly, students may be less threatened in peer settings, more likely to ask questions of their peers, and more likely to react better to comments from their peers than to teacher's comments (Haas, 2007). One student echoed this opinion, "I did find the peer review process helpful. I found it to be an easy and comfortable process to have a fellow student read my case report and give suggestions before meeting one on one with you." One caveat about peer review is that authors must understand that peer review is only a part of the submission process and that they are responsible for their final submission. A side benefit of peer support to the instructor is the final manuscript is of higher quality and easier to grade.

The case report provides an alternative assessment activity for faculty to evaluate the student's ability to apply essential knowledge and skills by producing something significant and related to previous instructional activities and clinical applications (Kossman, 2005). In physical therapy, no other form of standardized written communication gives the detailed and credible descriptions of the decision-making process for an individual patient that a case report provides (Childs, 2004; McEwen, 2004). It provides evidence that the student is prepared for clinical practice. Writing the report requires the student to make explicit the choice of examination procedures, the logic behind the evaluation, diagnosis, and prognosis, the rationale for the choice of treatments, and to summarize the outcomes. In the process of working with the patient/client, the student must demonstrate the behaviors, skills, or knowledge that describe the expected performance of entry-level physical therapists, particularly in the areas of communication, clinical reasoning, evidence-based practice, education, screening, examination, evaluation, diagnosis, prognosis, plan of care, intervention, outcomes assessment, management of care delivery, and practice management (*Evaluative Criteria*, 2009). Disseminating the case report demonstrates the student is prepared to contribute to the evidence for practice; a minimum required skill of physical therapist graduates (*Minimum Required Skills*, 2004).

By writing a case report, students exemplify evidence-based practice (Sackett, 2000). First, they define their need for information about the patient/client's examination, diagnosis, prognosis, or treatment into an answerable clinical question. Second, they search the peer-reviewed medical literature for the best evidence to answer the clinical question. Third, they appraise the evidence for validity, impact, and applicability to their patient. Fourth, they integrate the research evidence with their clinical expertise and experience along with the patient's circumstances and preferences to develop a patient/client care plan. By illustrating the value of the clinician's expertise and the input of the patient/client, a case report demonstrates that randomized controlled trials provide only one kind of evidence used to make clinical decisions (Browman, 1999). Indeed, the *Journal of Medical Case Reports* encourages authors to invite the

patient to contribute to the case report by including an optional *Patient's Perspective* section, where the patient describes their experience of the disorder and treatment (*Instructions for JMCR Authors*, 2010).

Although disseminating the case report outside of the university is not an expected outcome of the courses, it is disappointing nonetheless that no student elected to submit a case report for publication or conference presentation. Offers by the instructor to assist students with the submission process after the course has ended have not been successful. Requiring students to submit an abstract for an APTA conference was considered, but CR2 ends several months before the call for abstracts is posted, so it does not seem practical to require submission as a course requirement. Moreover, it is unreasonable to expect that the accepted student would be able to attend the conference the following year. Anecdotal feedback from students provides some insight into the reasons why they do not submit an abstract for presentation. The deadlines for submission of abstracts to the APTA conferences are just a few months after graduation when the graduate's priorities are preparing for the licensing examination, searching for a job, and relocating. Also, because of the uncertainties of where they will be living and working, students don't know if they can afford to attend a conference, or will be given time off by their employer to attend.

Future research should include the development of valid and reliable rubrics for evaluating case report manuscripts and presentations, and the effects of peer review on students' writing and learning. Interrater reliability will be particularly important when different faculty teach multiple sections of the courses. Additional attention needs to be paid to identifying the barriers to submission for presentation or publication and to developing strategies that promote submission of quality case reports for publication and conference presentation. Finally, it is recommended that faculty and clinicians share the teaching and learning activities they use for case report writing and evaluate how writing a case report affects students' clinical behaviors and professional development. If case reports are to illustrate the scholarship of practice (McEwen, 2004), educators have a responsibility to prepare students to contribute to the scholarship of their profession by writing and presenting a patient case report.

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Appendix. Grading Rubric for the Case Report Manuscript.

TITLE PAGE (5 pt)

Title clearly describes topic and states that the manuscript is a case report

Author's name, titles, location

Acknowledgements

ABSTRACT (5 pt)

Structure: Background and Purpose, Case Description, Outcomes, and Discussion; ≤ 275 words

BACKGROUND and PURPOSE (20 pt)

Scholarly presentation of background literature concerning the clinical problem
Provides a clear statement of purpose supported by the background information

CASE DESCRIPTION

Patient History and Review of Systems (20 pt)

Documentation of HIPAA compliance and patient consent
Demographic characteristics, medical history, patient/family goals for physical therapy

Clinical Impression 1 (10 pt)

Reviews the primary problem, the potential differential diagnoses, and the plan for examination

Examination – Tests and Measures (20 pts)

Examination procedures are consistent with Clinical Impression 1
Cite available studies on reliability and validity of measurements OR
Make presumptive arguments that the measurements would be reasonably reliable and valid

Clinical Impression 2 (10 pt)

Provide a statement confirming or denying the initial impression based on the examination
Physical therapy diagnosis
Prognosis

Plan of care including:

- Plans for referral or consultation
- Plans for additional testing (measures, time points) or follow-up evaluation of outcomes
- Plan for intervention
- Short- and/or long-term goals

Intervention (20 pts)

Detailed description of the physical therapy services for 3 areas of patient/client management:

- Coordination, communication, documentation
- Patient/client-related instruction
- Procedural interventions:

Chronology of interventions and changes in treatment with rationale
Indicators of patient compliance (e.g., attendance and performing home program)
Cites credible primary literature to support intervention(s) used

OUTCOME (20 pts)

Present the outcomes over the time points indicated in the follow-up plan
Compare final outcomes to baseline
Tables and Figures can be used to enhance the description

DISCUSSION (20 pts)

Summarize how the case demonstrated the intended purpose.
Relates findings to the literature and/or Background/Purpose of the case report
Avoids definitive cause-and-effect statements or generalizations to other patients
Discuss potential implications for clinical practice
Offers suggestions for future research

REFERENCES (5 pts)

Accurately follows American Medical Association style
30 or fewer

TABLES and FIGURES (0 – 5 pts)

Professional quality: accurate details clearly presented with legends and footnotes
Maximum of 6

APPENDICES (0 – 5 pts)

Provide essential material not suitable for Figures, Tables, or text
Accurate/adequate details clearly presented

ORGANIZATION, COMMUNICATION, AND LANGUAGE (35 pts)

Formatting:

- Pages double-spaced, with page numbers AND line numbers

Organization:

- Content correctly placed in appropriate sections

Communication and Language:

- Non-biasing, people-first language
- Correct grammar, spelling, and punctuation
- Appropriate scientific and medical terminology/abbreviations
- International System of Units for all measurements (English units in parentheses)
- ≤ 3,500 words (excludes Title page, Abstract, References, Tables, Figures, Appendix)

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