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History of Present Illness: Teaching History-Taking to Nurse Practitioner Students

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Abstract

Background: In an ever-changing complex healthcare system, nurse practitioner's clinical reasoning, interpersonal and history-taking skills remain at the core of safe, cost-effective, patient-centered care. As Nurse Practitioner (NP) student's transition into the provider role, they often struggle in obtaining a concise and pertinent patient history.

Problem: A need exists for NP programs to evaluate their pedagogical approach to enhance nurse practitioner student's critical thinking and history-taking skills.

Approach: This article outlines the implementation of evidence-based educational interventions to improve NP student's clinical reasoning and history-taking skills before their first practicum.

Outcomes: Through curriculum changes, virtual simulation exercises, and immediate constructive student-centered feedback, students, faculty and preceptors acknowledge a significant improvement in NP student's clinical reasoning and history-taking.

Conclusion: Our pedagogical approach supports the literature that suggests dual-process theory of clinical reasoning can be effectively taught to nurse practitioner students before their practicum rotations.

Keywords: Clinical reasoning; Medical history taking;Nurse practitioners; Nursing students; Patient simulation

Introduction and Background

As nurse practitioner (NP) students' transition into the provider role, they are met with the ever-changing advancement in technology and therapeutic modalities, as well as the increasing complexity of the health care delivery system[1].This system promotes transitioning the clinical NP student into an unsupervised primary care provider position very rapidly[2].Although innovative technologies, diagnostic testing, and therapeutic modalities are used to assist clinical providers in meeting these demands and challenges, the provider's interpersonal clinical skills remain at the core of cost-effective and quality care.Adequate collection of patient data is vital to avoiding premature closure of the patient evaluation that could lead to diagnostic errors[3].During this critical role transition, it is imperative that NP programs instruct students on the art and science of history-taking to allow for a successful patient interview. Teaching effective history-taking skills to NP students remains a realistic approach to adhere to the standards of a patient-centered healthcare model.

Although graduate NP programs are tasked with educating NP students with effective history-taking skills, the literature does not present a clear consensus on how history-taking skills should be taught to students. Many methods are utilized across advanced practitioner curricula and provided to students at various skill levels[4]. In 70-90% of cases, an accurate diagnosis can be identified solely from the patient's history[4,5].Providers often stifle communication with the patient by interrupting them after only 11 seconds on average[6].Premature closure of history-taking may equate to acquiring insufficient information from the patient and can lead to misdiagnosis[7].To promote quality and safety in accordance with the core competencies set forth by the 2017 National Organization of Nurse Practitioner Faculties, graduate nursing faculty are challenged with establishing history-taking education that allows for active student participation that promotes readiness to enter into the clinical setting with actual patients[8,9]. The purpose of this article is to identify the critical aspects required to complete a detailed and pertinent history and to discuss various methods to instruct nurse practitioner students in the art and science of history-taking.

Implementation of a Clinical Reasoning Curriculum

To foster an educational approach that supports a sound decision-making process, nursing faculty at our university remapped student plans of study and reformatted the advanced health assessment didactic and laboratory course. In our graduate NP program, advanced pathophysiology has become a pre-requisite and no longer a co-requisite to the health assessment and clinical reasoning course. During pathophysiology, the symptomatology of disease processes and the consideration of differential diagnoses are introduced to students.

In addition to program remapping, the advanced health assessment didactic and laboratory curriculum was redesigned by implementing a clinical reasoning curriculum. In the didactic portion, the new curriculum involves the introduction of the dual-process theory of clinical reasoning, advanced interviewing techniques, differential diagnosis, and cognitive bias awareness.Finally, nursing faculty introduce experiential knowledge through case studies, videos of real medical encounters, with group discussion, and reflection on clinical reasoning. In the lab, in addition to practicing advanced health assessment skills, simulated clinical encounters mimicking the clinical environment enhance the practice and integration of skills and the development of clinical reasoning.Each NP student completes a minimum of 30 group history-taking case scenarios during a semester, culminating in two individual graded history-taking assignments over a 14-week semester.The new clinical reasoning curriculum decreased didactic and laboratory class size to an average of 18 students in didactic and 6 in the laboratory per faculty.Due Covid 19 restrictions, actual live patients could not be utilized, and the faculty became the simulated patient.

Teaching Clinical Reasoning and Differential Diagnosis

In the last few decades, two frameworks of clinical diagnosis have emerged known as analytical and non-analytical reasoning. Analytical reasoning involves a logical, deductive, and sequentially organized approach aimed at testing diagnostic hypotheses. Each hypothesis is tested with the presence of additional relevant signs and symptoms [10]. Non-analytical reasoning, however, is based on pattern recognition. It consists of unconsciously making the link between a patient's clinical presentation and the provider's cognitive awareness of previous patterns that suggest a specific disease [11].

The Heuristic approach, as a non-analytical clinical decision strategy, is based on the most relevant predictors of a disease and ignores part of the available information. Therefore, the process is highly susceptible to cognitive biases. According to a study by Rush et al., cognitive biases are a leading cause of misdiagnosis[12].While a Heuristic approach is a helpful reasoning shortcut, NP students have a rudimentary knowledge of pattern recognition and cognitive bias awareness. However, medical errors that occur due to anchoring, overconfidence, premature closure, stereotyping, or confirmation biases are pervasive and persistent problems not only for NP students but for all clinicians, regardless of their level of experience[12,13].

Expert clinical providers integrate both analytical and non-analytical cognitive processes of clinical reasoning into their practice. For that reason, the process of generating differential diagnoses occurs in two interrelated steps. First, the activation of the illness script, which is linked to intuitive knowledge and pattern recognition, suggests specific, potential medical diagnoses. Second, the clinical provider deliberately tests their leading hypothesis with additional collection of pertinent subjective and objective data[11,13].

Due to their limited domain of knowledge and experience, novice NP students struggle with the integration of the dual-process theory into their clinical reasoning. Indeed, the ability for a student to generate differential diagnoses is the most difficult part of the history-taking process. Students frequently struggle with the issue of relevance, which determines whether a positive or negative symptom is a pertinent factor during the differential diagnosis process. Repeatedly, students fail to collect pertinent data or conduct a time-consuming comprehensive history with irrelevant data, increasing the risk of misdiagnosis[14].

Recent evidence suggests that the dual-process theory of clinical reasoning can be effectively taught to novices early, before their practicum rotations. Indeed, newer studies challenge that clinical reasoning can only occur in clinical settings through osmosis and role modeling, as the novices apply their newly acquired knowledge and experience under the supervision of an expert clinician[10,13].It is essential for NP students to be aware that all sections of a medical encounter are interrelated, including the subjective and objective data, assessment, and plan of care. The accuracy and pertinence of the subjective data collection or history-taking lays the foundation for the subsequent decision-making process. Therefore, the quality of the history-taking process is essential to refine the potential etiologies of the presenting symptoms and arrive at an accurate working diagnosis.

Many students admitted to a graduate nursing program have limited clinical experience in illness pattern recognition and atypical patient presentations. Additionally, the vast majority of NP students work as registered nurses in the hospital setting, which further constrains their ability to generate relevant differential diagnoses when evaluating primary care patients[10].NP students struggle most with the assessment section of a medical encounter, which synthesizes pertinent subjective and objective data and includes a refined list of possible differential diagnoses and a leading hypothesis as the presenting working diagnosis.

History of Present Illness

The History of present Illness (HPI) expands on the reason for the encounter. It is a chronological investigation of the eight attributes of a symptom: location, quality, severity, duration, timing, context, modifying factors, associated signs and symptoms[15].OLDCARTS is a mnemonic acronym used by clinical providers to evaluate the attributes of a symptom. This sequential checklist approach reduces up to 40% of diagnostic errors due to poor, or incomplete history-taking[12].

OLDCAARTS Mnemonic

In our course design, OLDCARTS was modified to include associated signs and symptoms (OLDCAARTS), which are essential to the diagnostic process. Including this detail during the history-taking process helps with identifying a more accurate working diagnosis from a list of differential diagnoses. To improve history-taking skills and evaluate students' competency, an assignment was designed that combines expected professional attitudes and the OLDCAARTS mnemonic. Two experts in the field of clinical reasoning, advanced health assessment, and differential diagnosis developed a rubric to encompass well-defined evaluative criteria, quality definitions and clear scoring strategies. Former NP students and expert NPs reported that the HPI rubric accurately measured their competencies. The combined HPI assignment and rubric are utilized as a reliable formative and summative assessment of the NP student's performance and understanding.The HPI rubric assignment is shown in (Table 1).

Evaluating Practice and Knowledge: History of Present Illness Assignment

In the laboratory, students demonstrate competencies through practice and implementation of concepts, principles and content covered in the didactic course. History of present illness assignments take places during the advanced health assessment and clinical reasoning laboratory. The student is presented with a simulated case scenario with a common primary care complaint for which she/he will take a pertinent history using the OLDCAARTS method. The topic of the case studies presented in lab are planned around material reviewed in the didactic course.

SECTION	EVALUATION
Professionalism / Graduate level performance Including business attire with name tag; use proper medical terminology and pronunciation of all medical terms; ID self and patient, approach the patient with respect; beginning and ending the exam well. 10%	
Collect the following data accurately. Students may lose points on each category for lack of clarity, poor communication skills, inappropriate demeanor or behavior.	
Onset: When the problem or symptoms started in chronological order of events, manner of the onset 10%	
Location: Exact location of pain (localized or generalized and evolution if pertinent) 10%	
Duration: Length of the problem, if intermittent, duration of each episode 10%	
Characteristics: Nature of the problem or pain 10%	
Aggravating factors: What makes the problem worse 10%	
Associated factors: Any pertinent associated factors such as nausea, fever, chills, etc. 10%	
Relieving factors: Any pharmaceutical or non-pharmaceutical interventions that decrease or eliminate the symptoms 10%	
Temporal factors: Frequency of occurrence, single, intermittent, chronic, change in symptoms intensity during the attack, improving or worsening over time 10%	
Severity of symptoms: 0 to 10 scale at best and worst pain, and/or effect on lifestyle or work performance. 10%	
TOTAL: /100	

Table 1: History of Present Illness Rubric Assignment.

Discussion

A variety of methods of history-taking skills can be utilized in the curriculum prior to the practicum experience to prepare the student with hands on skills in history-taking, physical examination, clinical reasoning, and differential diagnosis development. Bradshaw notes the importance of assignments that encourage implementation of the student professional role [16]. Faculty-developed case presentations depict actual patient scenarios designed to enhance this role development. The advancement of computerized programs allows for the development of a Virtual Simulated Patient (VSP) that the student can utilize for practicing history-taking interviews before actually encountering a live patient in a practicum setting.This allows the student to improve their interview skills with repeated encounters. Computer programs can also be a costly expense to purchase and maintain, which may be a deterrent for nursing programs [17].

Standardized patients (SP) are an alternative to VSP and involve the use of a live person. The SP can be a trained actor, a fellow student or a faculty member. Utilization of a SP can provide a more realistic practitioner-patient encounter as the SP can show emotion, demonstrate a physical deficit, and respond to any level question that is asked by the interviewer [18].A SP also allows the NP student to perform a physical examination following the history-taking interview to elicit the full patient experience [14].Utilizing an outside SP actor involves significant training time and a cost to the program that could be prohibitive. Utilizing the faculty as the SP allows for a more involved scenario, as the faculty is well versed in the detailed basis of the case study and can adjust the answers if needed to guide the student practitioner in a specific direction if the student appears to be struggling with the activity.

Utilizing specifically designed case scenarios in the laboratory portion of the health assessment curriculum to build on the didactic material covered in the same week provides a continued review of the material, but in a more typical patient-based encounter [14].Bradshaw notes that this allows the faculty to assess student's thinking process involving clinical reasoning [19]. As with any assignment, the student learning process continues via debriefing measures that involve constructive feedback.Immediate feedback provides an expert review of a student's performance and emphasize areas for improvement and remediation [20].

Implementation

The history-taking assessment with patient case scenarios are practiced each week in the health assessment lab setting with each new body system, to ingrain the mnemonic of OLDCAARTS into automatic thinking. This allows the NP student to practice in a safe and guided environment. In this NP program, the lab instructors are utilized in the role of the standardized patient. The faculty are well versed in each unique case scenario that they have developed and can adjust the particular case differently for each student. This presents an expert NP as the SP and eliminates the cost that would be associated with hiring and training outside subjects. Immediate feedback is given by the faculty to the student after completing the history-taking assessment to provide constructive suggestions that may be needed to improve the skills for the next assessment.Enhancing the student's weekly history-taking skills, as well as reinforcement of clinical reasoning and differential diagnostic skills, will have the NP student better prepared when they enter their first practicum rotation. Instructing NP students so that they are extensively prepared for their initial practicum placement will reduce the workload of the preceptors and may provide a competitive edge for placement.

Conclusion

We recognized the value of a VSP to assist students in developing their communication and reasoning skills, our program made the decision to involve the use of expert nurse practitioners simulating a "Real Patient" as a SP. Our approach has allowed a much closer contact between faculty and student and offers an opportunity for immediate student feedback. This allows the student to receive personalized, constructive criticism quickly and effectively perfects the students' history-taking skills. In the future, we will train students in the university drama department to become simulated patients. In the short time since implementing this adjusted curriculum design, we have received positive feedback from both students and preceptors. An additional benefit, given the current coronavirus pandemic, is that this approach is COVID-19 compatible and can be conducted remotely via a telehealth format or on campus with safety accommodations to mitigate the spread of the virus. Continued research is needed to evaluate the use of standardized patients and the implementation of clinical reasoning in graduate nursing program curricula. Hence, it is the goal of the authors to conduct a longitudinal-design study using multiple interviews, capable of elucidating the lived experience of NP students who are transitioning into the advanced practice role.

References

1. ShelbyM, Wermers R (2020) Complexity science fosters professional advanced nurse practitioner role emergence. Nursing Administration Quarterly149-158.
2. Hicks K, Rico J, Beauchesne M (2018) Core curriculum and competencies: A multisite analysis of postgraduate training programs for primary care nurse practitioners. Journal of Professional Nursing454-462.
3. Chew K, van Merrienboer J, Durning S(2017) Investing in the use of a checklist during differential diagnoses consideration: What's the trade-off? BMC Med Educa234.
4. Keifenheim KE, Teufel M, Ip J, et al. (2015) Teaching history taking to medical students: A systematic review. BMC Med Educa 15:159.
5. Muhrer J (2014)The importance of the history and physical in diagnosis. The Nurse practitioner 39:30-35.
6. Ospina NS, Phillips KA, Rodriguez-Gutierrez R, et al. (2019) Eliciting the patient's agenda-secondary analysis of recorded clinical encounters. Journal of general internal medicine 34:36-40.
7. Singh H, Meyer AN, Thomas EJ.(2014)The frequency of diagnostic errors in outpatient care: Estimations from three large observational studies involving US adult populations. BMJ quality & safety 23:727-731.
8. Thomas A, Donna N, Ruth K, et al. (2017) Nurse practitioner core competencies content.
9. Davis L, Colella C (2021) Use of role-play simulation to improve nurse practitioner students' case presentation: An innovative educational approach for the distance learner. Nurse Educ 46: 63-64.
10. Durham CO, Fowler T, Kennedy S(2014) Teaching dual-process diagnostic reasoning to doctor of nursing practice students: Problem-based learning and the illness script. J NursEduc 53:646-650.
11. Stern SD, Cifu AS, AltkornD(2015) Symptom to diagnosis: An evidence-based guide. McGraw-Hill Education/Medical New York.
12. Rush JL, Helms SE, Mostow EN (2017) The CARE approach to reducing diagnostic errors. Int J Dermatol 56:669-673.
13. Pinnock R, Anakin M, Lawrence J,et al.(2019) Identifying developmental features in students' clinical reasoning to inform teaching. Med Teach 41:297-302.
14. Loomis JA. (2016) Expanding the use of simulation in nurse practitioner education: A new model for teaching physical assessment. Journal for nurse practitioners12:e151-e157.
15. Center for Medicare & Medicaid Services. ICD-10-CM Official Guidelines for Coding and Reporting. 2020. Accessed January 12, 2021.
16. Bradshaw M (2016) Philosophical approaches to clinical instruction. In: Innovative Teaching Strategies in Nursing and Related Health Professions(7th Edition). Burlington, MA: Jones & Bartlett Learning. Pg No: 311-317.
17. Maicher K, Danforth D, Price A, et al. (2017) Developing a conversational virtual standardized patient to enable students to practice history-taking skills. Simulation in healthcare: Journal of the Society for Medical Simulation 12:124-131.
18. Barber LAM, Schuessler JB (2018) Standardized patient simulation for a graduate nursing program. The Journal for Nurse Practitioners 14:5-11.
19. Bradshaw M (2016)The clinical pathway: A tool to evaluate clinical learning. In: Innovative Teaching Strategies in Nursing and Related Health Professions(7th Edition). Burlington, MA: Jones & Bartlett Learning. Pg No: 439-447.
20. Grossman S, Conelius J(2015) Simulation pedagogy with nurse practitioner students: Impact of receiving immediate individualized faculty feedback. CreatNurs 21:100-109.