

Problem-Based Learning: A Creative Approach to Teaching Physical Assessment to Advanced Practice Nursing Students

HOBIE ETTA FEAGAI & CATHARINE M. CRITZ

Abstract

This article presents an innovative approach to teaching advanced physical assessment for Advanced Practice Registered Nurse (APRN) students in a hybrid course which integrates problem-based learning with more traditional teaching approaches. The article also includes implementation strategies and student feedback. An advanced physical assessment course is a foundational and essential component to a graduate nursing curriculum and where the student begins to assume the role of APRN. Aside from the classic systems approach to assessment and refinement of skills, the demanding health care climate of today requires the APRN student to additionally refine critical thinking and diagnostic reasoning skills. By using a problem-based learning approach, the APRN student is better prepared to make skillful, cost-effective, and evidenced-based decisions in health care delivery for future practical applications. By application of what the student has learned in the laboratory to clinical rotations in future courses, the path is paved for future employment opportunities.



An old Chinese proverb says: “Tell me and I forget. Show me and I remember. Involve me and I understand”. The transition from Registered Nurse (RN) to the role of Advanced Practice Registered Nurse (APRN) is often a challenge, even for the more seasoned professional. Taking an advanced physical assessment course is foundational to the nursing autonomy required for the APRN to make independent, self-directed assumptions and decisions. Problem-based learning (PBL) is a creative teaching strategy that allows the student, as an adult learner, to master physical assessment skills as they take responsibility for their own learning. PBL, defined here, refers to students learning through active participation while utilizing analytical, synthesizing skills to manage health care issues. Learning through PBL is always based upon laboratory experiences that mirror real-life situations. In this format, learning is *constructed* not just “delivered” through powerpoint lectures.

Historical Perspective

Problem-based learning (PBL) has its roots in medical school curricula as far back as 1950 when the trend shifted away from subject-based to a more integrated approach of real-life experience and group process (Tully, 2010). Only in the past 10 years has problem-based learning, now often referred to as enquiry-based learning (EBL), evolved into nursing education and the literature (Neimer, Pfendt, & Gers, 2010). There is limited nursing research and literature review about PBL as a methodology within graduate curricula.

Challenge of the Role Transition

The critical thinking and decision-making abilities of a RN in a hospital-based environment do not always translate into the autonomous critical physical assessment, analysis, and diagnostic interpretation skills required of the APRN in a community-based, population-focused setting. Novice APRNs often find the transition from graduate RN to primary health care provider an overwhelming adjustment. Taking on the new role of health care provider, the APRN must complete a comprehensive history and physical examination, formulate a diagnosis, and outline a treatment and/or health promotion plan.

Rather than using the traditional approach of teaching physical assessment as a head-to-toe assessment alone, the use of a problem-based learning strategy, as a facilitative approach, motivates the learner to be an active participant in learning, stimulates critical thinking as the student probes deeper into understanding real world scenarios, encourages synthesis of information, and facilitates the student to use a variety of resources to develop inferences and draw conclusions culminating in a plan of care (Tully, 2010; Ward, 2007). As a practice-based profession, the APRN student can more readily transfer knowledge learned in the laboratory through PBL methods to the lived practice environment (Biley & Smith, 1998).

Course Design

We designed a 3-credit, 15-week hybrid advanced physical assessment course integrating online learning with a traditional head-to-toe assessment approach and problem-based learning (Bickley, 2008). This course is the foundational core to precede the clinical placements of graduate students within the community.

In the first class students are oriented to the problem-based learning: with faculty as facilitator, students construct their own knowledge in the management of real-life clinical challenges through socratic questioning, problem-solving, self-reflection, and group process (Biley & Smith, 1998; Vittrup & Davey, 2010). Over a 15-week semester, the head-to-toe physical examination is broken down into reasonable units, such as head/eye/ears/nose & throat, respiratory, and cardiovascular. The didactic knowledge acquisition and preparation for the weekly two-hour laboratory session is completed with on-line assignments, including readings, article reviews, powerpoint lectures, and audiovisual aids. Students rely on what they reviewed online, with ample opportunity for questions and input from faculty, to solve the weekly problem scenarios. In this two-hour laboratory experience, each student has 20 minutes to complete the history and physical exam, 10 minutes to formulate a diagnosis and treatment plan, and 10 minutes to write a SOAP note. This is meant to mirror real-life practice.

At the beginning of each lab, faculty review pertinent history and assessment skills related to the body system(s) for the week. Students are then randomly paired and given index cards containing details of a health problem related to the unit of the week. Modeled after problem-based learning and experiential practice while focusing on commonly occurring illnesses actually seen in primary care, students are given clinically relevant cases as they conduct assessments in real time frames. For example, in the genitourinary unit, the patient scenario may be a menopausal woman with symptoms of a urinary tract infection (UTI). In this case, the student must take a holistic approach to not only address the acute condition (UTI) but also the impact of menopause on an aging female and related health promotion or educational needs. Using role playing, one student partner acts as the "patient" while the other takes on the role of the APRN.

The student who is role playing the "patient" is given a laminated card containing pertinent patient history and physical examination information: demographics, chief complaint, history of present illness, past history, family history, and personal-social history (see example below). Often, photographs are included to illuminate the case (see Figure 1). The "patient" is not allowed to give any information other than what is provided on their card unless asked by the "APRN" student in order to elicit the appropriate history. The student first conducts a problem-focused interview based upon data obtained. Faculty facilitate the learning process by empowering students to take risks as they analyze real-life clinical problems; construct new knowledge, skills, and attitudes; validate expressed opinions, or even make mistakes; yet, faculty always support the value of students' efforts in self-direction and discovery (Milligan, 1999; Vittrup & Davey, 2010).

Example of History and Physical Examination Findings

Chief Complaint: Mr. K is a 62-year-old farmer who has spent most of his life working outdoors. He presents to the clinic concerned about a mole on his right forearm. The lesion has been getting bigger and darker over the last two months. The lesion does not itch.

Past History: Denies serious illnesses or hospitalizations; began wearing sunscreen about five years ago. Smokes 1 pack of cigarettes per day for 45 years (45 pk/yr/hx).

Family History: Parents alive and well (A & W); 2 siblings: 1 deceased myocardial infarction, age 49, 1 A & W age 61. Paternal grandfather deceased - complications from skin cancer two years ago, age 97.

Social History: Married x 40 yrs, 2 adult children A & W; wife 30 pk/yr/hx smoking cigarettes.

Physical Examination: Negative except for:

Lungs: Barrel chest, decreased breath sounds

Skin: lesion on right forearm (see below)



Figure 1 Skin Cancer Foundation

Next Steps

After synthesizing the historical information, the student performs a focused or comprehensive physical exam, based upon the scenario, inclusive of only units from prior weeks and expectations for that week to formulate a diagnosis. Each week the examination skills are woven together with the previous skill set to promote organization and fluency of performance. Halfway through each class period, students exchange roles with new scenarios so that each has an opportunity to be both the patient and the APRN.

At the end of each class, students have an opportunity to use resources such as textbooks and the internet to formulate differential diagnoses, a working diagnosis, health promotion/education needs, and a possible treatment plan. Students then formulate a brief SOAP note and present their case to the class. Each student presents the case, describing the "patient" with a synopsis of pertinent history and physical examination findings, utilizing clinical reasoning to justify the inclusion or omission of certain information, and to rationalize differential diagnoses. The effect of culture, developmental variables, body language, patient reactions, and environment are included. Critical additional learning takes place as students present their case as colleagues give feedback, make suggestions, and offer other diagnostic rationale not previously considered. We found small group discussion is very effective in teaching students how to work through a case and present the findings in a complete, organized, and concise way and as a strategy for promoting peer-to-peer learning.

The environment must be one which students strive for excellence but feel supported in risk-taking as often, early in the semester, diagnostic assumptions may be incorrect. All ideas are valued and students derive comfort and an ease in learning from this atmosphere of mutual respect, trust, and support (Ward, 2007). Students become inspired to learn not just from faculty but from their peers in such a collegial environment of sharing and interaction (Demiris & Zierler, 2010).

Preparation is a key component for success of problem-based learning. Patient scenarios must be creative, realistic, and interesting to the students. Characters should be engaging and have reasonable health concerns among all lifespan groups. Scenarios must also be challenging but not beyond the scope of a beginning practitioner. Scenarios can be developed to teach or re-teach content that may not have been well understood. For example a scenario may involve a senior with both hypertension and diabetes to re-enforce the interrelatedness of health concerns. Health promotion is addressed in almost every case.

Students are also asked to write a reflective log on each experiential learning opportunity. Self-reflection as part of the problem-based learning process promotes navigation through the complexities of primary health care delivery resulting in gained confidence, skill competence, and enhanced performance in the role of APRN (Vittrup & Davey, 2010). Self-reflection regarding the experience also addresses how this experience could have been improved? What changes in practice are warranted?

Grading is accomplished by using rubrics for both written case documentation and oral presentations on select units. At the conclusion of the course, students must pass a complete head-to-toe physical assessment only, performed within a 30-minute time frame and guided by a specific skill checklist with 90% accuracy.

Student Evaluations

At the conclusion of the course, students were asked to complete a 10-item anonymous survey using an online tool (Table 1). Using a 5 point Likert scale, students were asked to rate their experiences with the course format. Data were collected from 8 students spanning two semesters. Fifty percent of the students had 7-10 years work experience, 12.5% had 3-4 years work experience and 37.5% had 1-2 years experience. Of those currently working in nursing, all were in a hospital setting. Five of the eight responders had taken a prior course with problem-based learning.

According to our student feedback, utilizing a problem-based approach resulted in high student satisfaction. Our students found this approach fun, interesting, and enriching. All of the responders either agreed or strongly agreed that problem-based learning helped them to develop critical thinking skills necessary for advanced practice. One hundred percent of the students reported that problem-based learning enriched their understanding of common patient chief concerns and how to manage them effectively. Seven of the eight responders indicated that problem-based learning helped to prepare them for their clinical rotations. One student was "undecided." Written feedback by one student indicated problem-based learning "let us work through patient problems in a very safe environment." Another student replied, "Allowing us to work in teams of two and share our findings with the class was another great way to help the class learn from others and feel confident in expressing our findings." Relative to the teaching method, one student commented, "I am not sure how to express how I feel about a name for your teaching method, but I know I learned more from this class than any class I have ever taken during my years of continued education!" All of the students surveyed reported they would choose a course with problem-based learning in the future.

Table 1. Survey Questions

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| <p>1-4. Demographic information</p> <p>5. Problem-based learning helped me develop my critical thinking skills as an Advanced Practice Nurse.</p> <p>6. Problem-based learning resulted in enriching my understanding of common patient chief concerns.</p> <p>7. As a teaching/learning strategy, problem-based learning was good for me.</p> <p>8. Problem-based learning helped to prepare me for my clinical rotations.</p> <p>9. The problem-based cases utilized were challenging but appropriate for graduate level education.</p> <p>10. I would choose a course with problem-based learning again in the future.</p> |
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Conclusion

The generalizability of this study is somewhat limited in that the number of students surveyed was so small (n=8). In future research a larger number of APRN student respondents should be queried. Nonetheless, upon graduation, APRNs are expected to move into a health care environment with the knowledge to make skilled, cost-effective, rationale clinical decisions. They must also be self-directed learners comfortable with approaching life-long learning in a n organized way and have a foundation for autonomous practice. Research indicates that students who have had problem-based instruction have better retention of material and perform well in the clinical area. This approach is an exciting opportunity for both the student and teacher.

About the Authors *Hobie Etta Feagai, EdD, MSN, FNP-BC, APRN-Rx, is an Associate Professor at Hawai'i Pacific University, College of Nursing & Health Sciences. Contact Dr. Feagai at hfeagai@hpu.edu; Catharine M. Critz, PhD, CPNP, APRN, is an Associate Professor at Hawai'i Pacific University, College of Nursing & Health Sciences.. Contact Dr.Critz at ccritz@hpu.edu.*

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