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Patient Centered Medical Home: Creating A Blueprint for Quality Healthcare Through Illustrative Simulation

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ABSTRACT

The advent of healthcare reform in the U.S. presents an unprecedented challenge to academic institutions that are striving to prepare a workforce to interact with individuals needing care in a variety of new practice settings. Patient-centered care is a core objective of these evolving settings which enhance access to a variety professionals and services in one location. This study was conducted over a period of three years and describes how illustrative simulation can be employed as a learning intervention to prepare graduate students for the expanded scope of practice necessary to function in the Patient Centered Medical Home healthcare delivery setting. The authors' evaluation revealed that doctor of nursing practice students' perceived illustrative simulation strengthened their understanding of: (a) the Institute of Medicine Core Competencies for a New Vision for Health Professionals, (b) the four competency domains identified by the Interprofessional Education Collaborative, and (c) the eligibility standards for National Committee for Quality Assurance – Patient Centered Medical Home recognition.

Keywords: Patient-Centered Medical Home; Interprofessional Education Collaborative; Illustrative Simulation; Healthcare Reform; Nursing; Institute Of Medicine

INTRODUCTION

In 2010, the Institute of Medicine (IOM) released the Future of Nursing report that identified a need for change in nursing curriculum to better align education with the scope of practice envisioned by healthcare reform (IOM, 2010). The report recommended that nursing education shift toward systems thinking, with an emphasis on utilizing a more team-oriented approach to improve quality and patient safety (IOM, 2010). The Affordable Care Act authorized the creation of the Center for Medicare and Medicaid Innovation (CMMI), (Patient Protection and Affordable Care Act, 2014).

The Center is now testing several innovative models of healthcare delivered by interprofessional teams based on the Institute of Healthcare Improvement (IHI) Triple Aim framework of improving the patient care experience, improving population health, and reducing costs equally for everyone (The Center for Medicare & Medicare Innovation, 2012). There is an emerging body of research indicating that successful practice transformation, required by the elements of the PCMH, impact changes in utilization, cost and patient satisfaction (Gilfillan, Tomcavage, & Rosenthal, 2010; DeVries, Li, & Sridhar, 2012). CMMI's efforts will provide richer evidence of these effects.

The projected shortage in primary care physicians will create new opportunities for nurses' scope of practice to expand (Cassidy, 2013). It will be critical that nurse-led practices be able to demonstrate that they can achieve PCMH-NCQA recognition and provide comprehensive population-based primary care. As a result, nursing education programs will be challenged to shift away from traditional learning models and explore new methods of innovative competency development and curriculum development (Rubenfeld & Scheffer, 2014). Provisions in the

health reform law are also dictating curricular change, with stipulations for the development of nurse-led clinics, education for advanced practice registered nurses (APRN's) and growth of interprofessional partnerships (Okrent, 2012).

The landmark report - Crossing the Quality Chasm - proposed a set of five core competencies to improve healthcare that begin by reforming education for health professionals, which are identified in Table I. The intention of competency-based learning was to align education with care that was safe, effective, patient-centered, timely, efficient, and equitable. The challenge educator's face in response to the IOM report is to develop a variety of learning activities that promote interprofessional knowledge and explicitly link to interprofessional competencies.

Healthcare curricular reform does not necessarily require a complete overhaul, and select educational tactics can be adapted to address the current shortfall. For example, there is ample evidence to support the use of instructional simulation as an innovative tool in healthcare education (Bradley, 2006; Norman, 2012). Seminal work on illustrative simulation reveals that the focus of role play is to allow learners to explore outcomes prior to a real-life encounter and can effectively transfer knowledge related to quality improvement and safety (McGuire & Babbott, 1967). Scenarios can be constructed using computerized mannequins, computerized simulators or structured scripts that typify select situations (Bradley, 2006). Seminal work in education has long established that simulation can also lead to competency development for groups, and provide a platform for illustrative problem-solving (McGuire & Babbott, 1967).

An illustrative simulation exercise was designed for a healthcare quality course to facilitate Doctor of Nursing Practice (DNP) student learning about the Patient-Centered Medical Home (PCMH) initiative. The exercise occurred over the course of ten weeks in three different stages, with three cohorts of DNP students enrolled during 2012-2014. During the simulation period, executives from the National Committee for Quality Assurance (NCQA) supported student mastery of interprofessional competencies and population health management by consulting with the teams. The goal was to guide teams toward eligibility for NCQA-PCMH recognition, a nationally renowned distinction for meeting the highest standards of healthcare quality by consumers and healthcare plans (NCQA, 2014).

STUDY DESIGN

The purpose of this study was to investigate how scripted illustrative simulation may be employed as a learning intervention to prepare graduate students for the expanded scope of practice necessary to function in the Patient Centered Medical Home (PCMH) healthcare delivery setting.

The study utilized mixed methods by extracting and compiling qualitative quotes and quantitative responses entered on a short survey form. The survey was developed to establish alignment of the simulation exercise with the course objectives, the IOM Core Competencies for a New Vision for Health Professions Education IOM, 2003), and the core competency domains identified by the Interprofessional Education Collaborative (IEC) Expert Panel in 2011. Table 1 defines the content in each of these.

Table 1: Course Objectives, IOM Competencies, IEC Core Competencies

DNP Healthcare Quality Course Objectives
Examine the concepts, principles and philosophy of quality improvement.
Analyze major challenges to successful implementation of quality improvement management approaches.
Discuss the importance of the team approach for analyzing and implementing quality improvement processes.
Utilize data driven methods for identifying and solving quality issues with emphasis on process indicators for rapid feedback and corrective action.
Utilize operational research as an integral aspect of management processes.
Design regulatory mechanisms that respond to quality improvement needs.
IOM Core Competencies for Health Professions Education
Provide patient-centered care
Work in interdisciplinary teams
Employ evidence-based practice
Apply quality improvement
Utilize informatics
IEC Core Competencies for Interprofessional Education
Values/Ethics for Interprofessional Practice
Roles/Responsibilities
Interprofessional Communication
Teams and Teamwork

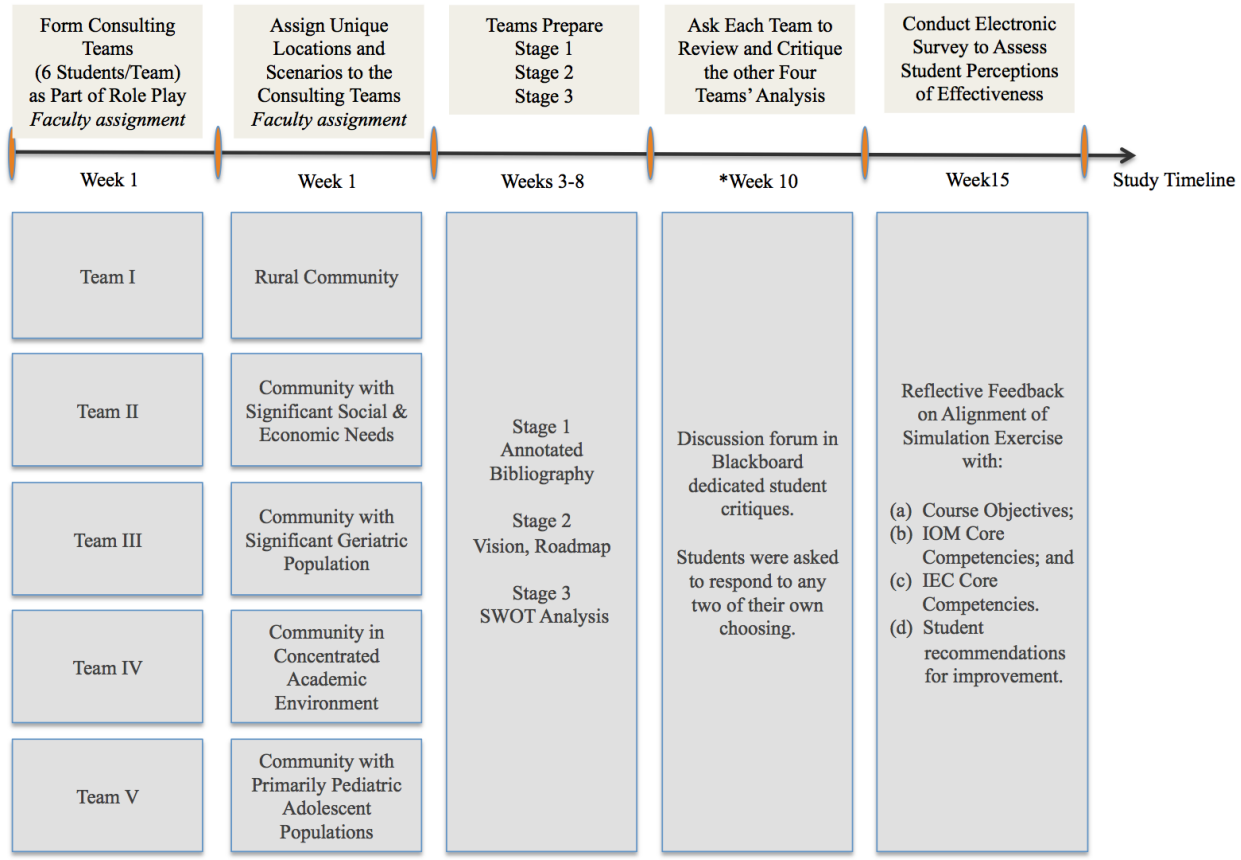
The researchers recruited a convenience sample DNP students enrolled in an online Healthcare Quality course for three consecutive years - from 2012 to 2014 (n=64). This course is certified by Quality Matters (QM), has met the rubric standards used to evaluate the design of online courses, and is officially listed on the national QM registry for its peer-based approach to continuous quality improvement, for course design, and for student learning (Quality Matters Program, 2012). The course is a core requirement in the DNP degree program at the George Washington University School of Nursing.

Participants were asked to complete surveys regarding their perception of the learning that resulted following a PCMH illustrative simulation. The study was approved by the GW Internal Review Board (IRB) and all participants provided informed consent.

For the purpose of the illustrative simulation, five different teams - comprised of six to seven members each - were established and identified as consulting companies. Each team was assigned a distinctive patient population that could derive benefit from a PCMH; for example, a rural community, a geriatric population, migrant worker population, English as a Second Language (ESL) population, Native American population, or a community with an underserved pediatric/adolescent population.

The business mission of the consulting company was to assist nurse-led practices in meeting the National Committee for Quality Assurance – Patient-Centered Medical Home (NCQA-PCMH, 2014) requirements in order to achieve recognition. Currently, there are several firms in the U.S. doing this work, but only for physician-led practices, so the teams were presented with a significant challenge.

The simulation exercise was designed in three stages. *Stage One* was to develop an annotated bibliography with at least 12 sources from research literature. *Stage Two* was to develop a vision and generate a corresponding roadmap for success which required teams to pool their knowledge and experience of population health, industry standards, information management, state legislative regulations (in some cases, federal regulation), local culture,and local infrastructure. The activity culminated in *Stage Three* required teams to produce a PowerPoint presentation of a Strengths/Weaknesses/Opportunities/Threats (SWOT) analysis narrated by a member from each team. Figure 1 displays how the exercise was structured. An aggregate of all three stages were posted in Blackboard, and individual students were expected to post comments for any two presentations of their choosing. The aggregate of the students' accomplishments could serve as a business plan for nurse-led practice transformation that could be adopted for any provider-led practice whether physician or Advanced Practice Registered Nurse (APRN).



*Note: Faculty grading of the assignment occurred during Week 9. The survey was distributed after final course grades were posted.

Figure 1: Study Structure, Flow, and Timeline

At the conclusion of the exercise, an electronic survey was administered that utilized five-point likert scale questions, with the higher total score indicating a higher degree of agreement with the variable. There were fifteen questions divided into three categories (the course objectives – 6 questions, IOM Core Competencies – 5 questions, IEC Core Competencies – 4 questions). The data were analyzed using the Statistical Package for the Social Sciences Edition 20 (SPSS-20) and descriptive statistics were generated to assess student perception of alignment with objectives and competencies. Space was provided on the survey to write in examples which were collected to identify potent verbatim quotes and inform themes that illustrated how the exercise was perceived by the DNP students.

RESULTS AND DISCUSSION

The analysis of responses to the survey indicates significant agreement that the exercise was well-aligned with the course objectives, IOM Core Competencies, and IEC Core Competencies. The majority of responses to each question were either strongly agree or agree that the exercise enhanced the mastery of objectives and competencies. To calculate summary measures, a scale was created for each of the three sets of questions by summing the responses for each one and dividing by the number of questions. The results are displayed in Table 2. Since the maximum value was 5 (for strongly agree), the mean scores of 4.5, 4.4, and 4.4 for perceived alignment of the simulation activity with the course objectives, IOM Competencies, and IPEC Competencies, respectively, indicated a strong perception among respondents that the exercise helped them operationalize evidence to make more effective team decisions.

Table 2: Mean Scores For The Sub-Scales

Sub-scale	Mean Scores	SD
Course Objectives	4.5	0.56
IOM Competencies	4.4	0.67
IPEC Competencies	4.4	0.65

Qualitative data were collected by asking five open-ended questions at the end of the survey. Four questions were aligned with the IPEC competencies and one requested student recommendations for improving the simulation activity. Data were analyzed by two members of the research team using inductive reasoning to formulate overarching themes that were supported by verbatim participant quotes. The resulting themes were validated by the remaining two members of the team independently. The results are displayed in Table 3.

Table 3: Categorization Of Responses To Four Open-Ended Questions
Aligned With The Interprofessional Education Collaborative (IPEC) Core Competencies

Survey Question	Inductive Categories
The PCMH exercise could promote interprofessional patient-centered community care that is grounded creating a safer, more efficient, and more effective system.	1. Integrated and synthesized diverse experiences 2. Employed systematic decision process grounded in evidence 3. Applied robust quality frameworks to solve real clinical issues.
The PCMH exercise is well-suited to utilizing a diversity of expertise that expands teamwork resources and interprofessional care.	1. Shared experience in a variety of practice settings to inform and guide collective thinking. 2. Coordinated individual strengths to function effectively as a team. 3. Utilized a wide range of communication channels to execute team tasks.
The PCMH exercise initiates effective communication that could equip interprofessionals to work together collaboratively.	1. Compared and contrasted care delivery for various populations. 2. Identified how best practices could help reach national benchmarks. 3. Acknowledged the need to create strong clinical, educational and managerial functions.
The PCMH exercise could promote interprofessional collaboration through shared problem-solving and shared decision-making, especially in circumstances of uncertainty.	1. Recognized the crucial importance of having interprofessional teams. 2. Developed a personal vision of how to advocate for safer patient systems. 3. Applied the concepts of holistic care delivery.

Responses to the first question generally addressed themes of collective knowledge and cooperation. Statements such as, "through collaboration, problems can be identified and worked through to provide effective and positive patient care outcomes" and "utilizing the expertise of others is a smart business decision" supported the three themes that emerged. Another example was, "as a team, we had to vote on the chronic illness that would be the focus of the QI project. This required our team members to use evidence to support the decision including public health statistics, national public health goals, and consideration of the course objectives".

The focus of the themes for the second question was communication. Examples of statements that supported this theme included, "the way the exercise was done allowed for communication to occur utilizing a variety of methods, conference call, electronic communication, file sharing and email" and "people who are accustomed to working as individual clinicians may not be as comfortable with working in teams. This group project required each person to contribute and to present ideas."

Responses to question three revealed that the ability to leverage different areas of expertise allowed diversity to evolve as strength for teams. In some cases, the activity served to concurrently alter their real-life practice. Examples of statements to support the themes identified were, "the interaction with other academic colleagues with varied experience allowed me to collect the information needed to redefine my professional goals to improve chronic disease management outside of the acute care setting" and "it opened my eyes to what other practices are doing to become a PCMH and some of those examples have helped my practice."

Question number four generated more responses than any of the other questions. Participants clearly perceived that the activity correlated with patient-centeredness and the need to develop interprofessional relationships. There was one response that summarized all of the comments very effectively - "students from other professions on the interdisciplinary care team could participate, e.g. mental health professionals, clinical pharmacists, nutritionists, social service workers". This exercise promoted a chance to collaborate and innovate from the start of the planning phase and better understand efficiency in clinical practice. Inclusion of administrators and business professionals would further mutual understanding and enhance the chance of the enterprise's viability."

Participant recommendations to improve the activity were to include students from other healthcare professions, economics, administration, and finance. Several identified that the addition of non-nurses would enrich the experience, breakdown practice silos, and result in more holistic patient care outcomes. Many identified that the online forum and Blackboard delivery process was ideal.

CONCLUSION

Evolving trends in the US healthcare delivery system must be reflected in healthcare quality education systems that are charged to effectively prepare providers for life outside the classroom (Interprofessional Education for Collaboration, 2011). Instructional design that is grounded in science and applicable across disciplines should be cultivated for today's interprofessional and collaborative practice settings and be developed for use in a variety of mediums, such as distance education, the traditional classroom, or a hybrid of both (Juliani, Corrente, & Dell'Acqua, 2011; Auerbach, Chen, Friedberg et al., 2013).

This pilot study demonstrated that students perceived that their ability to work effectively in the broader context of caring for communities was fostered by the illustrative simulation exercise prior to confronting the challenges in their own practice setting. Illustrative simulation can be an effective learning intervention to facilitate competencies that align with PCMH management, advance professional collaboration, and promote quality improvement practices in the healthcare workforce of the future (Abrams, Nuzum & Mika, 2011). To quote one participant, "this educational experience increased my understanding of PCMH and, through professional reflection, it was the catalyst that redirected and focused my professional goals."

AUTHOR INFORMATION

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