



Simulation-Based Training for interprofessional and patient-centered communication skills: A Community-Based Approach for nursing and medical students

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ABSTRACT

Educational institutions have a responsibility to produce a future healthcare workforce and prepare students to develop interprofessional competencies. This pilot study describes how a college of medicine responded to the need for interprofessional education by providing a simulation-based learning program available to medical and nursing students in the community as a routine part of their education. The simulation-based learning activities combined the Interprofessional Education Collaborative Core Competencies for professional communication practice and patient-centered communication skills. This simulation-based interprofessional learning program (Sim-ILP) consists of two sessions. The first session was a three-hour module designed specifically for nursing students to identify the differences in nurse-to-physician communication patterns and changes in the patient condition report. The second session was a four-hour module where nursing and medical students engaged with standardized patients in a primary-care setting, and human patient simulators in hospital settings. The comments from the program evaluation and the video-assisted verbal debriefing were positive. The medical students ($n=16$) and nursing students ($n=16$) learned how to develop a cooperative team effort across both professions, communicated shared decision-making plans of care with patients, and developed a collaborative care plan. The students recognized the importance of patient-centered communication to provide effective patient care, and the values of collaboration and shared decision-making by interprofessional teams. Simulation-based interprofessional learning program can be an effective strategy for shifting the way healthcare students communicate and collaborate to deliver patient-centered care to patients, families, and communities.

Keywords: interprofessional, simulation, communication, patient-centered, collaboration

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Introduction

Today's health care delivery system is rapidly changing to foster patient-centered care and interprofessional collaborative practice.¹ The Institute of Medicine (IOM) defined patient-centered care as “providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions”^{1(p40)} When patients participated in shared decision-making with healthcare providers, they tended to adhere to medical recommendations and reported better affective-cognitive outcomes with greater satisfaction with their care.^{2,3} Patient-centered communication skill is critical for optimal care and patient outcomes. Healthcare professionals must become competent in patient-centered communication skills with a holistic understanding of patients' needs and preferences while ensuring that patients have the information and support to make decisions and participate in their care. Health professional educators must prepare the future workforce to develop these new communication skills focusing on “patient-centered” care and putting less emphasis on a disease-focused approach.¹ Subsequently, patient-centered communication should be integrated as a core component of clinical education and training.

In addition to patient-centered communication, interprofessional communication is another essential communication skill for healthcare professionals. Interprofessional communication is the process of exchanging information and ideas between healthcare professionals, patients, and families in a way that promotes understanding, collaboration, and shared decision-making.⁴ Interprofessional communication is essential for the safe and effective delivery of healthcare.⁴ However, developing interprofessional communication skill can be challenging for healthcare students. Each healthcare profession has its own unique culture. For example, physicians traditionally learn independently in a competitive academic environment, while nurses learn early in their careers to work collaboratively as a team.⁵ The traditional training of healthcare professional students is to achieve specific competencies within their profession, rather than in an interprofessional setting, can lead to siloed working practices.⁵ The different cultures and educational backgrounds of health professionals can lead to different communication styles, which can lead to misunderstandings when they work together. In preparing the future workforce of the 21st century, health professional students must receive training and experience working in collaborative efforts with students from other professions and engage in a “patient-centered” conversation with one other.^{1,6}

Interprofessional collaborative practice is the key to safe, high-quality, accessible, patient-centered care, according to the Interprofessional Education Collaborative (IPEC) report.⁴ The IPEC core competencies for future health professionals encompass values and ethics, roles and responsibilities, interprofessional communication, and teams and teamwork.⁴ The World Health Organization (WHO) published a Framework for Action on Interprofessional Education and Collaborative Practice.⁶ The WHO's report indicated that interprofessional education occurs when “students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes”.^{6 (p7)} Whereas collaborative practice happens when multiple health workers from different professional backgrounds work with patients, families, caregivers, and communities to deliver the highest quality of care.⁶ Interprofessional education and collaborative practice allows health workers to engage any individual with diverse skills which can help achieve health goals.⁶

Interprofessional communication and patient-centered care are essential skills for all healthcare professionals. Simulation-based training can be a valuable tool for developing these skills.

Several studies have shown that simulation-based interprofessional education (IPE) can effectively prepare nursing students, medical students, and medical residents for the shared, complementary, and profession-specific competencies required during cardiac resuscitation rounds.⁷ An interprofessional live-patient simulation provided health professional students in nursing, occupational therapy, and social work, with an introduction highlighting shared and different bodies of knowledge within each professional group's scope of practice.⁸ A 3-hour interprofessional simulation training for medical and nursing students ($N=102$) was to practice open communication, shared information and decision-making, mutual respect, and trust, resulting in a significant improvement on the perception of each other's health profession and attitudes toward nurse-physician collaboration.⁹ This article describes a pilot study that used simulation-based training to practice interprofessional patient-centered communication skills among nursing and medical students in the community.

Pilot Study

The College of Medicine (COM) at our university has organized a university-wide interprofessional education (IPE) program for health professional students (medical, nursing, and social work students).¹⁰ However, a collaborative practice-ready health worker is someone who has learned how to work in an interprofessional team and is competent to do so.⁶ The COM has utilized simulation as a learning method to evaluate clinical competencies and patient-physician communication skills. Simulation can provide a real-life learning experience for health professional students to practice working in interprofessional collaborative practice in simulated settings, as contrasted with learning from observing or listening to other students participating in a group during the university-wide IPE program.¹⁰ The use of simulation can be a significant learning strategy for health professional students to promptly engage in a "patient-centered" conversation with one other and to work in interprofessional collaborative practice. The overall objective was to evaluate whether the simulation method assisted in developing interprofessional communication and patient-centered communication skills for health professional students.

The Core Competencies for Interprofessional Collaborative Practice was placed as the central domain of this pilot study. The development and implementation of this Simulation-based Interprofessional Learning Program (Sim-ILP) was designed utilizing Kolb's experiential learning theory (ELT), an educational technique that employs learning through discovery and experience as part of the learning process¹¹ and learning activities (Figure 1). During the "Concrete Experience" stage, a medical student interacted one-on-one with a nursing student to actively engage in simulated healthcare experience. The medical and nursing students also learned from their experiences resulting directly from their interactions with standardized patients or human patient simulators, as contrasted with learning from observing or listening to other students performed or participating in a group. These activities provided an opportunity for each student to emulate their future roles as a physician or a nurse, preparing them to work together in interprofessional collaborative practice.

The "Reflective Observation" stage requires that learners reflect on their experience by asking questions and discussing with others.¹¹ This Sim-ILP was designed to improve interprofessional communication and patient-centered communication skills. Our intent was not to evaluate clinical knowledge or technical skills. To avoid potential evaluation for clinical competency, the medical and nursing students were given a complete health history and physical examination report on three patients in community-based primary care and hospital settings. At the end of each scenario, the students reflected on their simulated experiences on

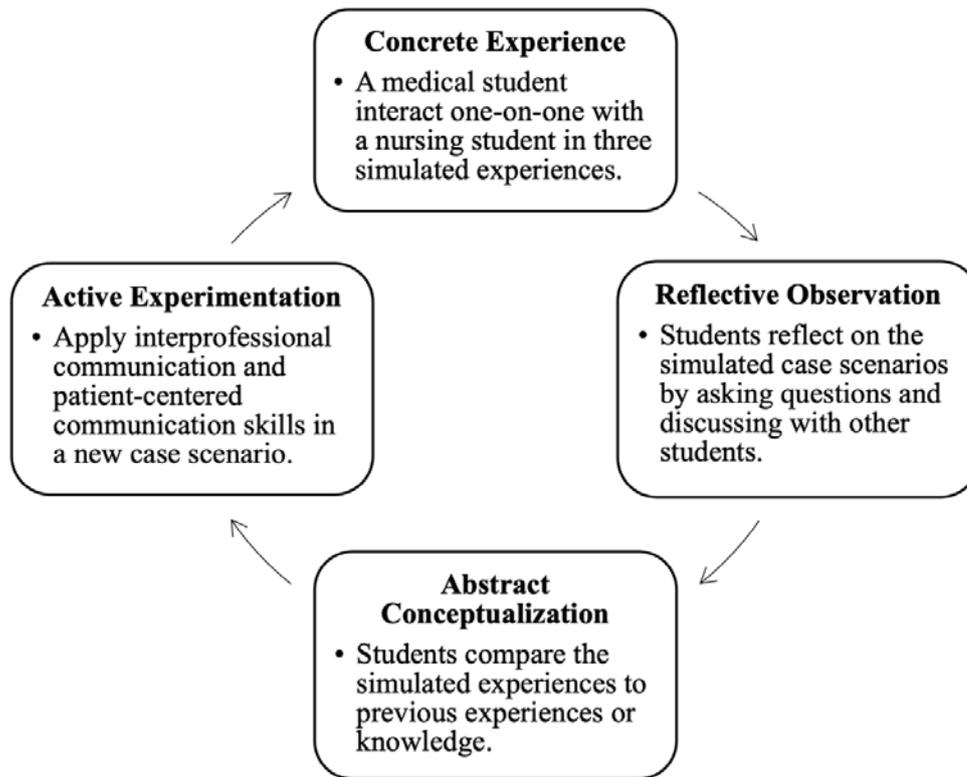
interprofessional communication with other students and patient-centered communication with standardized patients or human patient simulators.

The “Abstract Conceptualization” stage provides that learners compare the experience of the encounter to what they are familiar with, such as previous experiences or knowledge, and then interpret the relationship.¹¹ The three case scenarios were designed for the nursing and medical students to promptly engage in a “patient-centered” conversation with one another in a tabletop exercise and then with standardized patients or human patient simulators. The students presented and compared their simulated experiences between a tabletop exercise and simulated-based exercise.

The “Active Experimentation” stage provides that learners translate their understanding into practice.¹¹ The three simulated case scenarios were designed for students to practice interprofessional communication skills one-on-one with students outside their profession. In each case scenario, students gained experiences on how to engage in a patient-centered conversation with each simulated patient. Then, students work collaboratively with other students to deliver patient-centered care by taking into consideration the preferences, needs, and values of each patient. The goal was to evaluate whether the simulation-based case scenarios would prompt the nursing and medical students to engage in a “patient-centered” conversation with patients and each other. To evaluate the program, Debriefing Assessment for Simulation in Healthcare (DASH) tool and the International Association for Clinical Simulation and Learning (INACSL) Standard for Debriefing were utilized during the verbal debriefing sessions.^{12,13} Video-audio recordings were used to capture the students’ reactions during the simulation and verbal debriefing sessions.

The objective of this Sim-ILP was to: 1) provide health professional students an opportunity to practice interprofessional communication skills with students outside their profession, 2) recognize the importance of patient-centered communication skills directly linked to the patient care, 3) work together with students from other professions to deliver patient-centered care, and 4) provide interprofessional learning opportunities for medical students to engage with nursing students as a routine part of their clinical rotation. The goal was to evaluate whether the simulation-based case scenarios would prompt the nursing and medical students to engage in a “patient-centered” conversation with patients and each other. This Sim-ILP consisted of two sessions.

Figure 1. Summary of the four stages of Kolb's experiential learning activities ¹⁰



Designing the Community-based Sim-ILP

This Sim-ILP program was designed to provide opportunities for nursing students from colleges/universities to interact with our medical students and engage in educational experiences as a routine part of their clinical rotation. The authors determined that this simulation-based interprofessional program would start with third-year medical students and senior nursing students. We believe that our medical students should develop interprofessional collaborative and communication skills with both Associate Degree in Nursing (ADN) and Bachelor of Science in Nursing (BSN) students, preparing them to work in healthcare settings as future physicians. The challenges faced in this project were simulation resource limitations and creating a flexible schedule that would allow nursing students from different schools to select the day of participation. The Sim-ILP program consisted of two sessions, which were provided on multiple occasions during the academic year to accommodate the students' schedules. To ensure the sustainability of the Sim-ILP program, our simulation was able to provide the maximum of eight standardized patients or human patient simulators for each session without significant impact on other medical students' simulation training. Additionally, by having equal numbers of eight nursing students and eight medical students in each session. The students were able to practice interprofessional collaboration and communication skills between the two professions.

First Session

The first session was designed specifically for nursing students, who are both ADN and BSN students, from other colleges/universities in the community. The goal was for these nursing

students to get familiar with the IPEC competencies, the simulation center at our university and to establish an engaging learning environment. The first session is a three-hour simulated-based module utilizing various communication formats such as SBAR (Situation, Background, Assessment, Recommendation), TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety), ISBAR (Identify, Situation, Background, Assessment, Recommendation), and ISHAPED (Introduce, Story, History, Assessment, Plan, Error Prevention, Dialogue) from the Institute for Health Care Improvement. The goal was for the nursing students to learn the differences in nurse-to-physician communication patterns and changes in the patient condition report. Two case scenarios were utilized to understand how nursing students gather pertinent information when advocating for patients (Table 1). Nursing students were required to complete the first session two weeks before interacting with medical students in the second session.

Second Session

The second session is a four-hour simulation-based module where nursing and medical students practiced the interprofessional core competencies and engaged in three simulated case scenarios to develop a cooperative plan integrating the patient's needs and preferences (Table 1). Each nursing student interacted one-on-one with a medical student in a tabletop exercise and later with standardized patients or human patient simulators for a realistic experience. The case scenarios were assimilated into realistic clinical settings where a nurse would call a physician for an order or report changes in patient condition for a non-emergency situation. In one case scenario, the medical students did not interact directly with standardized patients or human patient simulators and did not review the health history information. The nursing students reported the pertinent information about the patients' condition to the medical students, utilizing one of the recommended communication tools previously described in the first session. The objective was for medical students working in collaboration with nursing students relying solely on their verbal reports to develop a patient-centered treatment plan. The goal was for nursing students to engage in a "patient-centered" conversation with patients and later shared information with medical students. The encounters were recorded and reviewed in the verbal debriefing sessions.

Debriefing Session

The debriefing sessions were based on the Debriefing Assessment for Simulation in Healthcare (DASH) tool and the International Association for Clinical Simulation and Learning (INACSL) Standard for Debriefing.^{12,13} According to the DASH tool, the debriefing sessions should be structured in an organized way to establish and maintain learning environment.¹² The INACSL Standard for Debriefing highlighted the importance of self-reflecting and learning by facilitating learners to discuss their reactions and understandings and summarized their simulation experiences.¹³ The use of video-assisted verbal debriefing or video-facilitated simulation feedback were effective methods to improve assessment and psychomotor skills as well as increase desirable clinical behaviors such as patient identification, team communication, and vital signs.^{14,15} The use of video-assisted verbal debriefing or video-facilitated simulation feedback methodologies may be an effective way to evaluate patient-centered communication skills among health professional students.

The purpose of verbal debriefing was to provoke engaging discussion in identifying the students' discovering of the patterns of communication styles and the different approaches to patient care. During the verbal debriefing sessions, the students viewed their performance via

video-assisted verbal debriefing and self-reflected on their performance as well as feedback from other students. Each student reflected whether the Sim-ILP established an engaging and maintained a learning environment throughout the three case scenarios. The students were asked to reflect on their learning experiences communicating with other students of different professions and engaged in “patient-centered” conversations. Later, the faculty encouraged engaging discussion on how students gained an understanding of different perspectives between medical and nursing professions and the importance of “patient-centered” communication skills. The students gave peer-to-peer feedback on how they identified professional cultural differences and the different approaches of care from the patient’s perspective.

After the verbal debriefing, students completed the program evaluation form that consisted of the following questions:

- 1) How does the case scenario enhance your interprofessional communication skill?
- 2) Has any new information about the patients been uncovered during the simulation?
- 3) Discuss any differences between communications with other health professionals.
- 4) What elements of the case scenarios contribute to more effective nurse-physician communication?

Program Evaluation

The authors used video-assisted observation to capture students' reactions during the simulation and verbal debriefing sessions, and to evaluate the program overall. The collaborative care plans from each scenario and video transcriptions of the debriefing sessions were used to evaluate whether students recognized the importance of patient-centered communication skills directly linked to the care plans. The standardized patients and human patient simulators were prompted to provide the patient’s preference when students focused on the “patient-centered” conversation, and only if the students asked the specific questions. For example, the case scenario of a Hispanic male who complained of his right knee and lower back pain. The standardized patients would not mention the unexpected death of his deceased wife, no family and community support, cultural belief, sleep patterns, diet, and other life stressors unless the student asked. The plan of care differed in each group, depending on how the students communicated with the patients and with each other.

Findings

We collected data from two Sim-ILP trainings for 32 students: 16 nursing students and 16 medical students. From the students’ comments, our objectives were met by preparing the nursing and medical students in practicing interprofessional communication skill. During their interprofessional collaboration learning experience, medical students gained a new appreciation for the importance of nursing roles in effective patient care. One medical student commented, "Where do I go from here only having information from the nurses?" Others said, "This gave me a new appreciation of how difficult it is for nurses to paint a picture for us. It's a hard task to take on, much respect for that." The comments from the nursing students were also very insightful. The nursing students found that interprofessional communication and collaborative practice empower nurses to influence healthcare decisions. They commented that "doctors and nurses can impact the future of healthcare based on how we communicate and collaborate. We need to be respectful of each other." The students recognized the importance of respect in interprofessional communication and its significant impact on the future of

healthcare. They committed to continue practicing these skills in their interactions with other healthcare professionals.

This Sim-ILP was designed to help medical and nursing students develop their skills in engaging in patient-centered conversations. The case scenarios included learning activities that helped students interpret patients' intended messages, recognize underlying messages, understand the meaning, and convey information to other healthcare professionals. The written comments from the students reflected positive reactions to communicating in patient-centered conversations. Both medical and nursing students noted that differences in care plans were due to how they asked questions, listened to the patient, gathered information, and shared information with other students. The medical students took away the importance of involving the nursing students in developing patient-centered care, while the nursing students took away the importance of advocating for patient needs and preferences with the medical students. The video-aided and verbal debriefing sessions were effectively engaged nursing and medical students in patient-centered communication skills. Through sharing experiences and perspectives, the students learned to ask patients what matters to them most, beyond just taking a health history or physical examination. The medical students commented that “Nurses spend more time with patients than they do, and that they should listen to nurses' insights.” By listening to patients and other healthcare professionals, nursing and medical students learned how to develop patient-centered care together.

The World Health Organization (WHO) defines interprofessional education as a learning experience that occurs when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes.⁶ During the Sim-ILP, students discovered new information from each other and learned how to collaborate effectively to improve patient care. Nursing and medical students have different educational backgrounds, which results in different knowledge, techniques, and skills. During a debriefing session, nursing and medical students discovered that they had different understandings of the terminology “neurological examination” and different techniques for conducting examinations on patients with mild concussions. These differences can lead to miscommunication, delays in care, or inaccurate diagnoses and treatments. To avoid miscommunication, both students agreed to provide concrete examples of their assessments instead of using technical terms. Through collaborative practice and knowledge sharing, nursing and medical students gained a better understanding of the differences between their professional educational backgrounds, which allowed them to provide excellent patient care together.

Implications

The future healthcare workforce must be competent in interprofessional core competencies and collaboration to provide patient-centered care. The Sim-ILP had provided opportunities for nursing students from other colleges/universities to engage in one-on-one learning experience together with medical students. These one-on-one interactions, rather than pen and pencil learning, has been a key element in developing more effective interprofessional and patient-centered communication skills. Although, one-on-one simulation training is a valuable tool for developing communication skills, it requires resources. Our simulation center would request an appropriate budget to include the Sim-ILP training as a part of clinical rotation in our community.

To provide an effective learning experience, medical and nursing students must be at a comparable stage of professional development to attend this program. The simulated case

scenarios were designed to reflect the levels of education of the students and were developed collaboratively by medical and nursing professional educators. To develop effective learning activities for the Sim-ILP program, it is essential to match the clinical knowledge and level of training of the medical and other healthcare professional students. The next step is to develop a tool for assessing clinical knowledge and competency, and to embed interprofessional education content into the curricula as part of their fulfillment of clinical hours. The next Sim-ILP program will expand to include from physician assistant, social work, and pharmacy students.

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Table 1. Summary of the simulation-based interprofessional learning activities

Session One	
Case Scenarios	Learning Activities
<p>Case Scenario I</p> <p>A 58 years old Caucasian male presents at the ED with productive coughs with increasing sputum and shortness of breath. The patient was admitted to the telemetry with no prophylaxis for Deep Venous Thrombosis (DVT) order.</p>	<p>Step1: Report without using communication tools Individual nursing student review the Case Scenario I and interacted with human patient simulators asking further questions (15 minutes). Write/take notes of the pertinent information for verbal report (10 minutes). Give a simulated verbal telephone report to a physician which was captured on video (5 minutes). Debriefing session (30 minutes). Review the video and group discussion on the effectiveness of the reports.</p> <p>Step 2: Review the communication tools: SBAR, ISBAR, or ISHAPED (30 minutes)</p> <p>Repeat writing the pertinent information from Case Scenario I, using any communication three communication tools (10 minutes). Give a simulated verbal telephone report to a physician which was captured on videos (5 minutes).</p> <p>Debriefing session (15 minutes).</p>
<p>Case Scenario II</p> <p>A 67 years old African American male presents to the Emergency Department (ED) complaining of shortness of breath along with mild, nonproductive coughs for the last 5 days. He was admitted for observation and a workup of congestive heart failure since he had a coronary bypass two years ago. Upon completing a Hospital Readmission Risk Screen, his heart rhythm changed which required the nursing students to call a cardiologist for an order.</p>	<p>Step 3: Report using communication tools</p> <p>Individual nursing student review the Case Scenario II and interacted with human patient simulators (15 minutes). Write the changes of patient’s condition (10 minutes). Give a simulated verbal telephone report to a cardiologist, which was captured on video, using any communication three communication tools (5 minutes).</p> <p>Debriefing session (30 minutes) Review the video and group discussion on the effectiveness of the reports.</p> <p>All students complete the program evaluation.</p>

Session Two	
Case Scenarios	Learning Activities
<p>Case Scenario I</p> <p>A 57 years old Hispanic male visits his primary physician at a Community Health Center complaining of his right knee and lower back pain. His physician ordered the fasting tests in advance. The results show a high level of blood glucose and cholesterol.</p> <p>As nursing and medical students examine the patient, they also will uncover that his hands were often as painful as well as his back and right knee. He is a bricklayer carrying heavy bricks over the years and is finally catching up with him. Over the past year, he mentioned that he had to stay home from work on an increasing number of days because the pain was so severe. He comes in with just wanting help with his pain that would these be sufficient to allow him to continue to work.</p> <p>When the nursing and medical students engage in a patient-centered conversation. A standardized patient will provide the following information: Following the sudden death of his wife at the age of 50, he became very depressed and mourned the loss in his wife. He did not take the same level of commitment as usual with his work.</p>	<p>For nursing students: Individual nursing student interacts with a standardized patient to obtain a health history, height and weight, and vital signs (15 minutes). Then, nursing students leave the examination room to complete the health history form to provide a verbal report to the medical student using SBAR, ISBAR, or ISHAPED (15 minutes).</p> <p>For medical students: Individual medical student interacts with a standardized patient to obtain a health history (15 minutes). Write a Subjective, Objective, Assessment, Plan or SOAP note (15 minutes).</p> <p>A team of a nursing student and a medical student: Develop a patient-centered care plan after nursing student provide a verbal report of findings using SBAR, ISBAR, or ISHAPED (15 minutes).</p> <p>Debriefing session (30 minutes) All nursing and medical students review their patient-centered care plan in a group discussion.</p>
<p>Case Scenario II</p> <p>A 67 years old African American male presents to the Emergency Department (ED) complaining of shortness of breath along with mild, nonproductive coughs for the last 5 days. He was admitted for observation and a workup of congestive heart failure since he had a coronary bypass two years ago.</p> <p>Upon completing a Hospital Readmission Risk Screen, his heart rhythm changed which required the nursing nurses to call a cardiologist for an order.</p>	<p>For nursing students: Individual nursing student interacts with a human patient simulator to complete a hospital readmission risk form (15 minutes). The nursing student was informed of a change in the patient heart's rhythm and call the cardiologist for an order (15 minutes).</p> <p>For medical students: Individual medical student receives a call from a nursing student about a change in patient's condition without examining the patient relying solely on the verbal report for the nursing student (15 minutes). Consider/propose a possible diagnosis (15 minutes).</p> <p>A team of a nursing student and a medical student: Develop a patient-centered care plan (15 minutes). Debriefing session (30 minutes) All nursing and medical students review their patient-centered care plan in a group discussion.</p>

Case Scenario III

A 77 years old Caucasian male was brought to the ED by an ambulance after a car hit him while crossing the street. He was admitted for a 24-hour observation period with multiple bruises and a mild concussion. A head CT scan was performed to determine the extent of cerebral pathology, if any, as a result of his head injury.

The ED staff reported that he was behaving strangely upon admission but was assumed to be concussion-related behavior.

For nursing students:

Individual nursing student interacts with a standardized patient to complete an admission assessment (15 minutes).

Then, nursing students leave the examination room to complete the admission and prepare and oral report using SBAR, ISBAR, or ISHAPED (15 minutes).

For medical students:

Individual medical student interacts with a standardized patient to obtain a health history (15 minutes).

Write a SOAP note (15 minutes).

A team of a nursing student and a medical student:

Develop a patient-centered care plan after the nursing students provide a verbal report using SBAR, ISBAR, or ISHAPED (15 minutes).

Debriefing session (30 minutes)

All nursing and medical students review their patient-centered care plan in a group discussion.

All students complete the program evaluation.