

A Communications Service to Nursing School Deans, Administrators, and Faculty

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EDITOR: JUDITH A. TYLER, MA, RN

## Integration of Patient Care Simulators into the Nursing Curriculum Can Enhance a Student's Ability to Perform in the Clinical Setting



Anita Andrews Kovalsky

Registered nurses in clinical practice have long recognized that technology impacts how they think about, plan for, and deliver patient care. Technology is now a part of our thinking, planning, and delivery of instruction in all levels of nursing at Valencia Community College.

A main focus of nursing education is assisting students to utilize and improve their critical thinking and problem-solving abilities using

the *nursing process* (the critical-thinking and problem-solving process unique to nursing), which may enable them to better adapt to the clinical setting in subsequent nursing courses. Students need to practice in a simulated environment, either prior to or as an adjunctive teaching strategy to the hospital clinical setting, in order to assure that their assessment skills are refined to the point where they can provide safe and effective care to patients. As nursing educators, we continually seek the answers to the following basic questions:

- How can we best accommodate entry-level nursing students so that they may provide safe and effective care to patients in a health care system where the number of clinical sites are increasingly limited, for nursing programs that strive to increase enrollments in response to the current demand for more numbers of nurses?
- How can we, as nursing educators, better prepare our students to provide safe and effective patient care in an ever-changing environment, where students receive a variety of clinical experiences that are often unique and unable to be duplicated, especially in the critical care arena, where not only are clinical sites limited, but nursing instruction is stretched beyond the number of clinical faculty available to teach these students?

At Valencia Community College, we initially addressed the latter concern as we integrated the Laerdal Patient Simulator (SIM MAN™) into the curriculum. Throughout the past 3 years, upper-level nursing students were introduced to the Patient Simulator on a day that took the place of a regularly scheduled clinical day. Nursing faculty who teach in that particular course accompanied students to the Patient Simulator room at the college, and through an interaction with

our Patient Simulator, known throughout the program as Mr. Thompson, students were able to assess medical-surgical problems, establish a nursing diagnosis, intervene, and evaluate the care provided. The nursing faculty facilitated the interaction, utilizing various learning-centered techniques, which required students to think critically. Scenarios with the Patient Simulator for upper-level nursing courses included Mr. Thompson having either *an acute asthma attack, acute myocardial infarction, or an acute neurological event involving brainstem herniation*. A more exact account of how entry-level students interacted with the Patient Simulator will be discussed later in this article.

### Integration into Entry-level Courses

Following successful integration of the Patient Simulator into Valencia's upper-level nursing courses, our next challenge was to assimilate it into the entry-level nursing course, *Foundations of Nursing*. Students entering the nursing program at Valencia take two nursing courses in the first semester, *Foundations of Nursing* and *Health and Physical Assessment*. Since neither of these courses have a clinical component, students do not have the opportunity to interact with actual patients until they begin the clinical component of nursing during the second semester of the program, which is *Adult Health Nursing I*. Therefore, students may have increased anxiety about actual patient interactions in the hospital setting. They may also experience anxiety about implementing the critical-thinking and problem-solving nursing process, which they have been taught in the *Foundations of Nursing* course. A component of *Foundations of Nursing* is the theory, which in the initial weeks of that first semester introduces students to information on critical-thinking and problem-solving. Then the nursing process is introduced to the students. The nursing process is subsequently threaded throughout each course of the nursing curriculum, and students are expected to apply it to an actual patient in the clinical setting beginning in the *Adult Health I* course.

Additionally, in *Foundations of Nursing*, students have a laboratory component that is taught in the *Nursing Arts Laboratory (NAL)*; however, as previously noted, they are not yet in a clinical setting with "real" patients. The hands-on care they give in the NAL setting is taught using various learning strategies, and the hands-on skills components have definitive methods established for evaluation of student learning, usually involving the non-interactive patient mannequins. Student mastery of skills, such as *NG Tube Insertion* or *Urinary Catheter Insertion*, are demonstrated to students by nursing faculty or shown via videotape; after the student practices, the student presents a return-demonstration to the instructor.

Current teaching strategies in *Foundations of Nursing* seek to integrate the 2 areas of the nursing process theory and

lab content, and have been a work in progress. In the classroom setting, we have traditionally utilized a PowerPoint presentation on the nursing process, which integrated critical-thinking questions and case studies. Students then resolved the case study activities, either as a group, in conjunction with classroom cooperative learning strategies, or independently at home, and turned the activity in as a homework assignment.



Rita Swanson, BSN, RN, Professor of Nursing, observes a nursing student demonstrate her nursing skills on SIM MAN™.

Through a Title III Project Grant at Valencia, we were able to successfully bring SIM MAN to a level in which first-semester nursing students, who had not yet entered into the clinical setting, could practice the bedside assessment skills taught within both the didactical theory and laboratory components of *Foundations of Nursing*. This allowed our students to use critical-thinking skills as they work through the nursing process, from assessment through nursing diagnosis, outcome identification, planning, implementation, and finally to the evaluation phase. This project has also allowed us to integrate the following essential competencies of a Valencia faculty educator:

- Learning-centered teaching-learning strategies.
- Valencia core competencies, specifically, think, communicate, and act.
- Assessment as a tool for learning.
- Promotion of an inclusive learning environment for students.

Our student goals for integrating the Patient Simulator into *Foundations of Nursing* were threefold. Students would:

- Increase their level of cognitive critical-thinking and problem-solving abilities.
- Identify through reflective writing how they feel their critical-thinking and problem-solving abilities were improved by utilizing the simulated interactions with SIM MAN, as opposed to the traditional paper and pencil case studies.
- Exhibit decreased anxiety prior to entering the hospital clinical setting.

The case scenarios with SIM MAN are an interactive creation of various patient situations, which students perform in the NAL setting. Student participants in this simulated patient scenario can actively take on the role of a professional nurse in the clinical setting, assess the SIM MAN, deter-

mine the client problem, set an outcome, and respond with nursing interventions.

A live operator programs the SIM MAN throughout the Case Scenario. Using the nursing process, students functioning in the role of the professional nurse attempt to solve SIM MAN's problem. Subsequently, the entire situation is processed by faculty in the room immediately afterwards, and the students return to the NAL to write up a brief nursing care plan with the assistance of the faculty member. They also receive a group "grade" from an Evaluation Rubric, which indicates how the student group performed as a whole.

When the student nurse participants (usually in groups of 8) enter the SIM MAN room, they are randomly assigned to 1 of the following 5 nursing functions: Lead Nurse, Vital Signs Nurse, Oxygenation Nurse, Circulator Nurse, or Pharmacology Nurse. Usually, two students are paired to function in one role. They are given a badge to wear, which reminds them of their role within the scenario. The faculty member in charge of the group assists them in reading the patient orders from the SIM MAN's chart.

A nursing faculty member is present to direct students and facilitate the interaction with the patient simulator. SIM MAN has verbalizations, previously programmed by a faculty member, to which the students are expected to respond, as well as alterations in oxygenation status ( $\text{paSO}_2$ ) and other vital signs, such as temperature, heart rate, respiratory rate, and blood pressure. Heart sounds, breath sounds, and bowel sounds may also be altered at the entry-level; however, we are not using the heart sounds. Students assess the changes in the aforementioned subjective and objective data as they progress through the simulation; as they rectify "Mr. Thompson's" problem, data become more normalized if students intervene correctly.

Because entry-level nursing students have no knowledge of disease pathophysiology, achieving patient scenarios at levels where learning can occur was challenging. In reviewing the skills taught within the laboratory component of *Foundations of Nursing*, along with what the students were concurrently learning in their *Health and Physical Assessment* class, the following scenarios were created and incorporated into the first semester nursing course:

- Pain.
- Neuro Status/Oxygenation Assessment.
- Genitourinary/Gastrointestinal Assessment.

During each interaction with "Mr. Thompson," students are randomly assigned to one of the scenarios listed. In the **Pain Scenario**, Mr. Thompson has either "incisional pain" from an abdominal incision, or "discomfort" from a Stage II pressure ulcer on his foot. For the **Neuro Scenario**, he complains of "dizziness," while in the **Oxygenation Scenario**, he complains of being "short of breath." In the **Genitourinary Scenario**, he "can't void," while in the **Gastrointestinal Scenario**, Mr. Thompson says he is "nauseated" and begins to gag. In this last scenario, we alter his nasogastric tube in various ways, so that students have to realize that his symptoms are present because the tube is not patent.

## Summary

With their permission, several of the student interactions with the patient simulator have been videotaped, and this

video footage has been used as a tutorial follow-up to the interactive laboratory experience. Additionally, in evaluating this project, students were given the opportunity of completing an anonymous online virtual survey, which gave us their feedback on the SIM MAN experience. While the majority of the students felt that the interactions were a learning experience, a few noted that they would have liked to interact with the patient simulator on a one-to-one basis rather than in a group. Time constraints have prohibited us from evaluating them individually; however, we realize that this could be beneficial to the student as an individual.

We feel that through the use of well-planned and thoroughly developed, focused patient scenarios, our students' ability to think critically and apply didactical theory has been strengthened. Faculty and students are confident in their beliefs that case scenario simulations have contributed to increasing student competency, confidence, and efficiency of clinical practice. We are currently in the process of evaluating the first group of students who had the patient simulator prior to entering the clinical setting to see if the patient simulator decreased their anxiety prior to the clinical experience.

These scenarios are proving to be invaluable opportunities as enrollment at Valencia Community College continues to grow and clinical site opportunities diminish. The entry-level student is afforded the opportunity to experience bedside practice prior to entry into the actual clinical setting. The students have unanimously endorsed the use of SIM MAN within all levels of the program. They love the "hands-on," "life-like" experience that SIM MAN gives to them. Use of this technology is proving to be an integral part of our learning-centered nursing curriculum.

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**Anita Andrews Kovalsky, MNEd, RN, is a Professor of Nursing and Foundations of Nursing Course Instructor, Valencia Community College, Orlando, FL.**

**Rita Swanson, BSN, RN, is a Professor of Nursing and Nursing Arts Lab Supervisor, Valencia Community College, Orlando, FL.**

#### **Additional Reading**

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## **NSNA MidYear Conference Daytona Beach, Florida Adams Mark Hotel**

The 22nd Annual MidYear Conference of the National Student Nurses' Association will be held in Daytona Beach, Florida, from November 11-14, 2004. This career planning conference is a must for beginning students, graduating seniors, or students somewhere in between.

The conference will be held at the Adams Mark Daytona Beach Resort, located directly on Daytona's only traffic-free beach in the heart of Ocean Walk Village. The hotel is located approximately 4 miles from the Daytona Beach Airport and about 60 miles from the Orlando Airport.

The MidYear Conference offers nursing students a broad selection of activities, including workshops, panels, exhibits, career counseling sessions, and the NSNA Mini Review Course, all to help students prepare for careers as professional nurses.

The conference will begin on Thursday, November 11, with the keynote address given by Melodie Chenovort, a nurse, entrepreneur, and nationally known speaker and author. You will be entertained, enlightened, and delighted with her presentation. Don't miss it!

On Friday, November 12, the *new* "New Directions in Nursing" panel will focus on *nursing's future*. Friday's agenda also includes comprehensive workshops for student leaders on areas such as membership recruitment, newsletter production, running for national office, managing chapter finances, and more.

Saturday begins with a buffet breakfast sponsored by the Army Nurse Corps with a presentation on leadership. During two "Specialty Nursing Panels," panel experts will discuss the different aspects of numerous specialty nursing areas. A variety of workshops on leadership, graduate school, marketing yourself, getting involved in health care politics, and more are offered in the afternoon.

Several faculty workshops will be offered, enabling you to obtain continuing education credit, learn about the work going on at NSNA, and network with colleagues.

Encourage your students to attend and come along with them to this exciting and educational MidYear Conference in Daytona Beach.

Visit the NSNA Web site ([nsna@nsna.org](mailto:nsna@nsna.org)) for more information.

**For more information, contact  
National Student Nurses' Association  
45 Main Street - Suite 606  
Brooklyn, NY 11201  
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# DEAN'S Notes™

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## National Spirit of Nursing Winner Announced

Congratulations to Lisa Coffey, a nursing student at the University of Texas Medical Branch, School of Nursing, Galveston, TX, who is the esteemed national winner of the *Spirit of Nursing Award*. This award, presented each year at the National Student Nurses' Association Annual Convention, is sponsored by the United States Army Recruiting Command. The Spirit of Nursing Award is given to a student who demonstrates outstanding achievement and commitment to the nursing profession, and who best demonstrates the spirit of nursing in her/his life. The national winner is selected from the school winners by a board of judges from the U.S. Army and the National Student Nurses' Association.

The application and information about the award is mailed to schools in late fall or can be obtained from local Army Nurse Corps recruiting stations.

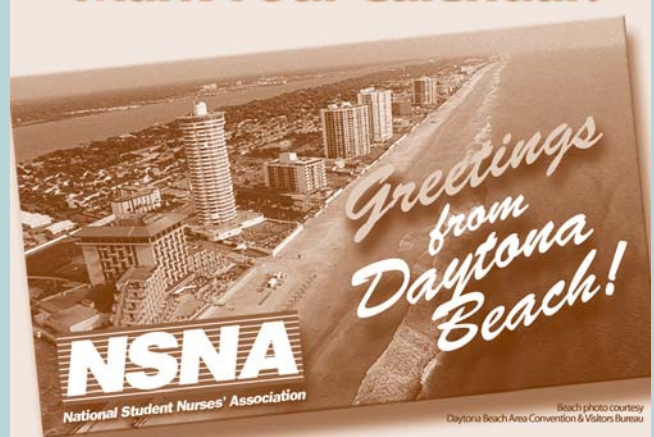
## Erratum

The following reference was inadvertently omitted from the feature article, "Safe Environments: Accountability, Clarity, Education, and Teamwork" (Farley-Toombs) that appeared in the March 2004 issue of *Dean's Notes*.

Hart, C.A., Broad, J., & Trimborn, S. (1984). Managing violence in an inpatient setting. In Saunders, Anderson, Hart, & Robertstein (Eds.). *Violent individuals and families: A handbook for practitioners*. Springfield, IL: Charles C. Thomas.

This reference relates to the Frameworks for Training section, specifically to the *Cycle of Aggression* and the *Self Awareness Model*. We regret the omission.

## Mark Your Calendar!



## NSNA 22nd Annual MidYear Conference

Adams Mark Hotel and Ocean Center  
Daytona Beach, Florida  
Thursday, Nov. 11 - Sunday, Nov. 14, 2004

Watch [www.nсна.org](http://www.nсна.org) for future updates!