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Featured Article

Simulated Home-Based Health Care Scenarios for Nurse Practitioner Students

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KEYWORDS

simulation;
nurse practitioner;
advanced practice;
home-based primary
health care;
standardized patients

Abstract

Background: The current model of educating nurse practitioner (NP) students is limited by the number of clinical sites in the home setting. The purpose of this project was to use state work force transformation dollars to develop and implement a home-based primary health care simulation experience for NP students. **Method:** Faculty employed simulation consultants to provide a learner-centered activity based on the NLN Jeffries Simulation Model, using INACSL standards, to 30 primary care NP students. **Results:** This report describes the process and student impressions. **Conclusions:** Well-planned and well-delivered clinical simulation projects can enhance clinical experiences for NP students in home-based primary health care.

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Home-based primary health care (HBPHC) has surfaced as a model that is value based and cost-effective to produce improved patient outcomes in the most vulnerable populations (Coppa, Winchester, & Roberts, 2018). It is estimated that there are two to four million homebound, elderly people in this country, with multiple chronic and complex diseases, who benefit from home-based services (Centers for Medicare & Medicaid Services, 2014). Nurse practitioners (NPs) predominate the 70% of the HBPHC visits in the United States (Yao, Rose, LeBaron, Camacho, & Boling, 2017). The Institute of Medicine and Future of Nursing Report recommends an expansion of the number of

advanced practice nurses, to deliver these home-based services (Neal-Boylan, Mager, & Kazer, 2012). However, challenges of finding quality preceptor-led clinical placements, particularly in the home setting, for NP students is an ongoing problem (Aronowitz, Aronowitz, Mardin-Small, & Kim, 2017; LeFlore & Thomas, 2016; Mason Barber & Schuessler, 2018). Therefore, the development and adoption of innovative, sound, and measurable educational models is paramount to preparing the ever-increasing numbers of NP students.

One educational model that has demonstrated efficacy is simulation. Results from the National Council of State Boards of Nursing study showed that, when specific guidelines were instituted, there were no significant differences in undergraduate student outcomes when up to 50% of clinical hours were

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substituted with simulation (Alexander et al., 2015; Hayden, Keegan, Kardong-Edgren, & Smiley, 2014). However, there is still much debate among NP faculty on the role of simulation in graduate programs (Wyatt & Krauskopf, 2014). Recently, the National Task Force on Quality Nurse Practitioner Education allowed for simulation to augment the required direct patient care clinical experiences hours (National Task Force on Quality Nurse Practitioner Education, 2016), but counting simulation hours as actual clinical time is still up for debate (Rutherford-Hemming, Nye, & Coram, 2016; Wyatt & Krauskopf, 2014). The use of standardized patients, as opposed to high-fidelity simulation manikins, has been shown to be an effective student-centered approach for NP students to master clinical skills in a safe, nonthreatening environment (Schram & Mudd, 2015).

Key Points

- The National Task Force on Quality Nurse Practitioner Education allows for simulation to augment the required direct patient care clinical experiences hours.
- Clinical simulation scenarios can increase nurse practitioners' exposure to home-based primary health care in a safe environment.
- The use of standardized patients, as opposed to high-fidelity simulation manikins, has been shown to be an effective, efficient student-centered approach for NP students to master clinical skills in a nonthreatening context.

The purpose of this project was to utilize work force transformation dollars to develop and implement an HBPHC simulation experience for NP students. Educational objectives included student use of motivational interviewing to address the immediate and chronic health care needs of an elderly man and his male partner, such as medication reconciliation, postoperative healing, and hypertension status in a simulated home environment. Students were expected to identify and recognize the effects of social determinants of health that victimized this couple. Furthermore, this experience involved standardized participants and was guided by simulation theories (Jeffries, Rodgers, & Adamson, 2015; Kolb, 2015) and the INACSL Standards of Best Practices: SimulationSM (The INACSL Standards Committee, 2016).

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Background

A college of nursing in New England was awarded a Health Resources and Services Administration grant to establish

an Academic-Clinical Partnership with two Federally Qualified Health Center Organizations. The state was experiencing a primary health care provider shortage because there had been an increase of approximately 50,000 individuals in the primary care clinics who were previously medically uninsured. Social determinants of health, particularly poverty, low educational levels, and unemployment, negatively affected these individuals, many of whom had gone so long without primary health care that routine health problems had escalated into complex chronic diseases. One way to address these problems was to establish an HBPHC project through one of the health centers in the Academic-Clinical Partnership. This resulted in a 59.4% decrease in rehospitalizations and a 35.6% decrease in emergency department (Coppa et al., 2018). While these percentages are exciting, the ongoing issues of limited clinical exposure for NP students meant that only eight students had access to these home-bound patients.

To re-envision this experience for the students, the project director conceived a plan to integrate simulations into the NP program, but because of a deficient number of trained faculty needed to facilitate simulation, this experience required a unique form of outsourcing. Using additional grant funding from the State Executive Office of Health and Human Services, the project director employed a simulation consulting company to provide education to NP faculty on theories supporting Simulation Pedagogy, as well as Standards of Best Practice. In collaboration with Nurse Practitioner faculty, the simulation consultants also wrote the home-based primary care simulation scenario, developed electronic chart materials, provided standardized patient character development and training, and facilitated the simulation experience. This simulation project educated 30 Family and Adult-Gerontology NP students over the course of two days.

Theoretical Framework

Both Kolb's Experiential Learning Theory and the NLN Jeffries Simulation Model formed the foundation for the simulation-based education described. Simulation is steeped in learning theories that support the creation of an experiential learning opportunity. Influenced by the teachings of Piaget and Dewey, Kolb's Experiential Learning Theory provides a foundation for simulation by allowing participants a hands-on approach to promote learning and knowledge retention (Kolb, 2015).

A focused, safe, learner-centered, collaborative simulation activity was the framework for this nursing simulation experience (Jeffries et al., 2015) and an important element in the development of HBPHC scenarios for NP students. Jeffries' theory provided a framework of essential elements for simulation design and implementation. Clear learning objectives guided the direction of the scenario and provided

measurable outcomes to determine student learning. Simulation scenarios included contextual factors, such as the background of the patient and the place setting, to add depth to the scenario and a level of fidelity to the patient situation. The actual setting of the simulation experience needed to provide an environment of trust where students felt safe taking risks and making mistakes as they acted outside of their normal student roles. The psychologically safe learning environment provided a dynamic interaction between participant and facilitators which relaxed the participants, suspended disbelief, and therefore increased the fidelity of the learning experience (Jeffries et al., 2015). These theories provided the NP student the opportunity to act as the practitioner and not as a student, offering the chance to make independent clinical decisions, and determine the appropriate treatment plan regarding the primary care needs of a patient. This occurred while simultaneously demonstrating professional behaviors in the role of NP.

Specific concepts from the theory enabled the faculty and the simulation educators to incorporate sound concepts and standards to develop, implement, and begin evaluation of the simulation (Jeffries et al., 2015; Schram & Mudd, 2015; The INACSL Standards Committee, 2016). This included course curriculum objectives and curriculum content to establish the structure of the scenario in a nonthreatening environment. The design elements included in the theory provided a collaborative, learner-centered experience through which the facilitator and the student were equally responsible for meeting the objectives. The student objectives for this simulation project were written by program faculty and the simulation experts. These objectives were to utilize principles of motivational interviewing to assess the acute and chronic primary health care needs of an older adult in his residence; to identify and evaluate the impact of social determinants of health, including financial constraints, on the primary patient and his life partner; and to suggest treatment strategies around medication reconciliation and postoperative care. The Standards of Best Practice: Simulation: Simulation Design included content preparation before the experience, as well as a prebriefing and debriefing session for each set of students in the scenario (Jeffries et al., 2015; The INACSL Standards Committee, 2016).

Scenario Development and Description

Creation and implementation of the simulation experience were based on the INACSL Standards of Best Practice: SimulationSM (The INACSL Standards Committee, 2016). The scenario was based on content delivered to Adult-Gerontological and Family NP students after one semester of clinical practice, including medical conditions that were realistic for an adult, HBPHC visit. Students were advised to use motivational interviewing techniques to foster internal motivation that changes patient behaviors (Albright, Bryan, Adam, McMillan, & Shockley, 2018).

The simulation involved an initial follow-up visit to a 65-year-old man 3-days status after anterior hip replacement surgery. Because the scenario was developed for this specific region, historical figures, locales, and cultural considerations were integrated (i.e., names, dates, occupation, etc.) for authenticity. The home environment was staged as cluttered, the patient was dirty, and the medications required multiple levels of clarification. As the scenario evolved, students identified unanticipated issues in medication reconciliation, as well as psychological and social aspects of health that required meaningful conversation and appropriate referrals to specialty health care providers.

Student Preparation

All 30 students enrolled in the Directed Advanced Study and Clinical Practice in Primary Health Care Course participated in the simulation. These students had previously received content via the university's online teaching platform on the medical conditions and social determinants of health in the scenario. In addition, they were concurrently participating in precepted clinical experiences, two of whom were in actual HBPHC settings.

Faculty Preparation

The simulation consulting company provided education to NP faculty on Simulation Pedagogy and Standards of Best Practice. In coordination with the NP faculty, the consultants developed and completed a checklist of expected student behaviors and cofacilitated the debriefing with the NP content experts. The simulation consultants trained three sets of standardized participants on the day before implementation with a review of the previously provided script, three rounds of pilot-testing, and discussions and role-play on providing feedback. During pilot testing, NP faculty reviewed the scenario to ensure last-minute consistency and realism.

Implementation

On the day of simulation, students were provided a prebrief session that included explanations on the purpose of the formative experience, the Center for Medical Simulation's Basic Assumption (Rudolph, Simon, Raemer, & Eppich, 2008), the importance of confidentiality of the scenario and the debriefing conversation, and the role of the fiction contract. Students were told that the home visit would include two standardized participants who would provide feedback during the debrief. They were given a home care kit, including physical assessment instruments similar to those used in practice, and time to review the electronic

health record. Students were instructed that the simulation would end either when all objectives had been met or when time had expired.

Students participated in groups of 2–3 and were instructed that, because they are learning the role of the NP, they would collaborate to create the role of one NP. This division would allow focus on one aspect of the role (i.e., collecting history, performing physical, completing medication reconciliation) to not overwhelm the students. They were told that they could function simultaneously but could not interfere with other students. For example, one student could gather the history, but the conversation needed to be timed to not interfere with the physical assessment. The division of roles was decided independently by each group of students during the prebrief.

The simulations were simultaneously conducted by two consultants and two content experts in two simulated home environments. The simulation began when the students were invited to the home by the patient. The duration was approximately 20 minutes, followed by a 40-minute debriefing. They were encouraged to utilize resources typical for a home visit, including the electronic health record. Faculty observed for actions expected of the NP, including evaluation of assessment findings and development and summary of a treatment plan.

Debriefing

Time for reflection is an integral part of the formative simulation experience ([The INACSL Standards Committee, 2016](#)). In congruence with the Standard of Best Practice: Simulation: Debriefing, students returned to the prebriefing space for debriefing immediately after the scenario ([The INACSL Standards Committee, 2016](#)). This classroom allowed for private, confidential conversations. The trained consultants used the “Debriefing with Good Judgment” (DGJ) framework to structure the debriefing conversation ([Rudolph, Simon, Rivard, Defresne, & Raemer, 2007](#)) and included NP faculty as content experts. None of the content experts were responsible for student grades within this course. The DGJ framework allowed for genuine inquiry during the phases of reaction, analysis, and summary that originate in the perspective that learners want to do the right thing. This format helped the facilitators uncover some common themes. These included scope of practice, the influence of social determinants of health, clinical decision making, and development and communication of a treatment plan.

Facilitators and NP faculty noted that students had difficulty performing within the NP scope of practice and repeatedly reverted to expecting another professional to provide orders for patient care. Using DGJ, the facilitators encouraged the students to reflect upon the role of the NP, while use of Socratic questioning guided students to recognize the inherent responsibilities of the provider.

The co-debriefing NP experts assisted by providing insight that allowed the students to shift their decision making to align with the NP role.

The influence of social determinants of health was uncovered through motivational interviewing. During debriefing, students reflected upon the financial struggles that were uncovered, including unpaid bills and impending electrical shut-off. The importance of community resources was discussed, identifying the role of the provider in making appropriate referrals and recommendations.

Clinical decision making was another theme that emerged during debriefing. During medication reconciliation, students recognized that the patient was on multiple medications for hypertension. Students recounted results from the physical examination and explained their thinking as to the reason that a particular medication was determined to be the best choice for the patient. While some of the students made the right pharmacologic decision, some missed the patient’s physical cues and continued the wrong medication. Understanding the students’ thinking helped facilitators determine if the choice was the right thinking/wrong action or wrong thinking/wrong action. This determination was necessary so to move the students toward right thinking/right action.

Finally, development and communication of a treatment plan was often incomplete. As the students were new to performing unassisted in the role of the NP, summarizing the treatment plan was frequently overlooked. The importance of clear communication of the treatment plan for the benefit of both the patient and provider led to a valuable discussion on safe provider care.

In addition, the students had the benefit of feedback from the patients they cared for. The directed feedback was focused on communication and caring attitudes and behaviors. On one occasion, a student was brought to tears when told that the patient felt cared for when she was speaking to him. She commented that it meant a lot to her to know that she was making a difference. Although most of the feedback was positive, some student behavior was identified as upsetting to the patient. One example included students’ comments to the patient regarding the items cluttering the floor while initiating clearing and disposing of these items. Although the students sought to be helpful, identifying the perceived messages that the patient was unable to clean was upsetting to him.

Results

Thirty students participated in the exercise, 27 of whom had not participated in a fully simulated experience, previously. In accordance with the Standards of Best Practice: Simulation, all simulation-based experiences were evaluated to ensure outcomes were consistent with program and course outcomes ([The INACSL Standards Committee, 2016](#)). However, because this paper is designed to describe the

development and implementation of this simulation-based experience, no analysis of the quantitative data is included. Instead, this report contains voluntary and anonymous comments on student's impressions of the experience. The comments were e-mailed to a staff member who deleted names before providing printed copies to the project director.

Eight of 30 students responded via e-mail. Comments, interestingly enough, corresponded nicely to the theoretical framework and the INACSL Standards.

All of the students commented on the learning that was obtained through the experience. "The sim experience ... by far one of the best learning experiences ... in my career." All but one echoed that comment. The only negative comment was that the scenario wasn't long enough.

Seven of eight respondents commented on the realistic nature of the scenario. These comments included "I loved how the lab was set up as an apartment ... realistic." "The realism was superb ... I forgot it wasn't really happening." "It felt like a real-life situation ..." "... helped us know what we may see in the real world."

Five comments addressed the structure and design of the experience. Two students commented on the value of comments from the actual actors (patients). Sample comments were: "[the realism] of the scenario allowed me to think like a provider ... with no pressure by cameras ... the debriefing process provided feedback from the faculty and from the patient perspective ... overwhelmingly wonderful!" "Definitely better than having the manikin sim."

Discussion

This project was very resource intensive, typical of clinical simulation (Mason Barber & Schuessler, 2018), and required six faculty members, two simulation experts, one graduate student assistant, a team of three technology experts, and six standardized patients for two days. Student preparation, before the day of simulation, was critical to receive the didactic content. The fact that these students had experienced one full semester of supervised clinical experience added to the success and, from this project's student outcomes, is highly recommended. The literature suggests that students should complete simulations before supervised clinical experiences. This project supported the claim that HBPHC can be introduced to students safely who have never made home visits (Giddens et al., 2014; Starkweather et al., 2017).

Recommendations

This project demonstrates the value of simulation-based learning experiences. Allowing "learning by random opportunity" (Gore & Thomson, 2016; p. 188) inherent in clinical rotations may meet the required number of clinical hours; but the inconsistency questions the quality of

these experiences. Recommendations from this project include continued, strategically placed simulations within NP curricula to provide consistent opportunities for reflective learning.

The authors acknowledge that further summative evaluation of this scenario is necessary and will be forthcoming. Additional research investigations to capture the transfer of knowledge, skills, and attitudes from simulation to the clinical setting are needed to support the important role of simulation in NP education.

Conclusion

The authors of this paper described the means by which a simulated clinical experience could be successfully designed and implemented for a cohort of NP graduate students. Although resource intensive, by following INACSL Standards of Best Practice, including in-depth planning, prebriefing, scenario delivery, and debriefing, the students expressed positive learning outcomes from the experience. The authors demonstrated a safe and structured means by which faculty, with simulation experts with technical support, can augment preceptor-supervised clinical experience for NP students.

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References

- Albright, G., Bryan, C., Adam, C., McMillan, J., & Shockley, K. (2018). Using virtual patient simulations to prepare primary health care professionals to conduct substance abuse use and mental health screening and brief intervention. *Journal of the American Psychiatric Nurses Association, 24*(3), 247-259. <https://doi.org/10.1177/1078390319321>.
- Alexander, M., Durham, C. F., Hooper, J. I., Jeffries, P. R., Goldman, N., Kardong-Edgren, S., ..., & Tillman, C. (2015). NCSBN simulation guidelines for prelicensure nursing programs. *Journal of Nursing Regulation, 6*(3), 39-42.
- Aronowitz, T., Aronowitz, S., Mardin-Small, J., & Kim, B. (2017). Using objective structured clinical examination (OSCE) as education in advanced practice registered nursing education. *Journal of Professional Nursing, 33*(2), 119-125. <https://doi.org/10.1016/j.profnurs.2016.06.003>.
- Centers for Medicare & Medicaid Services. (2014). Medicare-chronic condition warehouse (CCW) condition period prevalence. Retrieved from <https://www.ccwdata.org/web/guest/medicare-charts/medicare-chronic-condition-charts>.
- Coppa, D., Winchester, S. B., & Roberts, M. B. (2018). Home-based nurse practitioners demonstrate reductions in rehospitalization and emergency

- department visits in a clinically complex patient population through an academic-clinical partnership. *Journal of American Association of Nurse Practitioners*, 30(6), 335-343. <https://doi.org/10.1097/JXX.0000000000000060>.
- Giddens, J. F., Lauzon-Clabo, L., Morton, P. G., Jeffries, P., McQuade-Jones, B., & Ryan, S. (2014). Re-envisioning clinical education for nurse practitioner programs: Themes from a national leaders' dialogue. *Journal of Professional Nursing*, 30(3), 273-278. <https://doi.org/10.1016/j.profnurs.2014.03.002>.
- Gore, T., & Thomson, W. (2016). Use of simulation in undergraduate and graduate education. *AACN Advanced Critical Care*, 27(1), 86-95.
- Hayden, J., Keegan, M., Kardong-Edgren, S., & Smiley, R. A. (2014). Reliability and validity testing of the creighton competency evaluation instrument for use in the NCSBN national simulation study. *Nursing Education Perspectives*, 35(4), 244-252. <https://doi.org/10.5480/13-1130.1>.
- Jeffries, P. R., Rodgers, B., & Adamson, K. (2015). NLN Jeffries simulation theory: Brief narrative description. *Nursing Education Perspectives*, 36(5), 292-293.
- Kolb, D. (2015). *Experiential Learning: Experience as the source of learning and development* (2nd ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- LeFlore, J. L., & Thomas, P. E. (2016). Educational changes to support advanced practice nursing education. *The Journal of Perinatal & Neonatal Nursing*, 30(3), 187-190.
- Mason Barber, L. A., & Schuessler, J. B. (2018). Standardized patient simulation for a graduate nursing program. *The Journal for Nurse Practitioners*, 14(1), e5-e11.
- National Task Force on Quality Nurse Practitioner Education. (2016). Criteria for evaluation of nurse practitioner programs. Retrieved from http://www.acenursing.net/resources/NTF_EvalCriteria2016Final.pdf.
- Neal-Boylan, L., Mager, D. R., & Kazer, K. W. (2012). Nurse practitioners in home health care: An update. *Home Health Care Management & Practice*, 24, 193-197.
- Rudolph, J. W., Simon, R., Raemer, D. B., & Eppich, W. J. (2008). Debriefing as formative assessment: Closing performance gaps in medical education. *Academic Emergency Medicine*, 15(11), 1010-1016. <https://doi.org/10.1111/j.1553-2712.2008.00248.x>.
- Rudolph, J. W., Simon, R., Rivard, P., Defresne, R. L., & Raemer, D. B. (2007). Debriefing with good judgment: Combining rigorous feedback with genuine inquiry. *Anesthesiology Clinics*, 25, 361-376.
- Rutherford-Hemming, T., Nye, C., & Coram, C. (2016). Using simulation for clinical practice hours in nurse practitioner education in the United States: A systematic review. *Nurse Education Today*, 37, 128-135.
- Schram, A. P., & Mudd, S. (2015). Implementing standardized patients within simulation in a nurse practitioner program. *Clinical Simulation in Nursing*, 11, 208-213.
- Starkweather, A., Sargent, L., Nye, C., Albrecht, T., Cloutier, R., & Foster, A. (2017). Progressive assessment and competency evaluation framework for integrating simulation in Nurse Practitioner education. *The Journal for Nurse Practitioners*, 13(7), e301-e310.
- The INACSL Standards Committee. (2016). INACSL standards of best practice: SimulationSM. *Clinical Simulation in Nursing*, 12, S5-S50.
- Wyatt, T. H., & Krauskopf, P. B. (2014). Should simulation count toward nurse practitioner student clinical practice hours? *The Journal for Nurse Practitioners*, 10(8), 538-539.
- Yao, N. A., Rose, K., LeBaron, V., Camacho, F., & Boling, P. (2017). Increasing role of Nurse Practitioners in house call programs. *Journal of American Geriatric Society*, 65(4), 847-852. <https://doi.org/10.1111/jgs.14698>.