Clinical Simulation in Nursing (2019) 26, 32-37

Clinical Simulation in Nursing

www.elsevier.com/locate/ecsn

Featured Article

Adult Gerontology Acute Care Nurse Practitioner Student and Prelicensure Registered Nurse Student Perceptions of Intradisciplinary, High-Fidelity Rapid Response Team Simulations

Megan M. Shifrin, DNP, ACNP-BC*, S. Brian Widmar, PhD, ACNP-BC, CCRN, FAANP, Nathan E. Ashby, MD

Vanderbilt University School of Nursing, Nashville, TN, USA

KEYWORDS

adult gerontology acute care nurse practitioner;
registered nurse;
student;
high-fidelity simulation;
rapid response team;
collaboration;
communication;
intradisciplinary

Abstract

Background: Adult gerontology acute care nurse practitioner (AGACNP) students and prelicensure registered nurse (RN) students rarely have the opportunity to actively participate in the management of acutely decompensating patients during inpatient clinical rotations. However, upon completion of their academic programs, these two groups will frequently interact in the hospital setting when managing acutely ill patients. This combined lack of hands-on experience and failure to practice team interactions may contribute to impaired intradisciplinary collaboration, delayed utilization of the organizational rapid response team (RRT), and adverse patient outcomes.

Methods: AGACNP and RN students were presented with high-fidelity simulation experiences in which they worked collaboratively to stabilize and manage acutely ill patients after RRT activation. Following debriefing after the simulation experience, AGACNP and RN students were provided with an optional pen and paper survey that measured their perceptions of the experience on a five-point Likert scale.

Results: The survey data support that the RRT simulation experience provided AGACNP students with the opportunity to lead and collaborate with intradisciplinary team members in stressful situations and reinforced their views that detailed communication and a cohesive team is critical in the management of acutely ill patients. The experience assisted RN students in identifying criteria for RRT activation, practicing communication skills with intradisciplinary health care team members, working collaboratively as part of an intradisciplinary team, and recognizing areas for improvement in communication.

Conclusions: AGACNP and RN students perceive intradisciplinary, high-fidelity simulation to be a valuable form of preparation in the management of acutely ill patients requiring RRT activation.

Cite this article:

Shifrin, M. M., Widmar, S. B., & Ashby, N. E. (2019, January). Adult gerontology acute care nurse practitioner student and prelicensure registered nurse student perceptions of intradisciplinary, high-fidelity rapid response team simulations. *Clinical Simulation in Nursing, 26*(C), 32-40. https://doi.org/10.1016/j.ecns.2018.09.006.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

* Corresponding author: megan.shifrin@vanderbilt.edu (M. M. Shifrin).

1876-1399/$ - see front matter
https://doi.org/10.1016/j.ecns.2018.09.006

Over the past decade, multiple initiatives have emphasized the need for improved diagnosis and management of hospitalized patients who experience a rapid decline in their physiological status. In response to Joint Commission patient safety initiatives and the 2004 Institute for Healthcare Improvement 100,000 Lives Campaign, many health care organizations formed a rapid response team (RRT) to assist with the early identification and initial assessment, triage, and management of these patients (Institute for Healthcare Improvement, 2006; Sarani & Scott, 2010). A recent metanalysis supports that utilization of an inpatient RRT is associated with reduced rates of cardiopulmonary arrest in hospital patient care areas outside of the intensive care units and reduced inpatient mortality (Solomon, Corwin, Barclay, Quddusi, & Dannenberg, 2016; Winters et al., 2013).

Key Points

- Adult gerontology ac ute care nurse practitioner (AGACNP) students and prelicensure registered nurse students may have insufficient opportunities to manage decompensating patients during their inpatient clinical rotations, leading to multiple detrimental outcomes as learners move into their professional roles.
- A high-fidelity simulation series provided AGACNP and RN students with the opportunity to work together on an intradisciplinary team after rapid res ponse team activation, practice communication during stressful circumstances, and col laborate in providing evidence-based management to an acutely ill patient.
- AGACNP and RN students reported that the simulation series assisted them in identifying the skill set needed to manage a challenging patient scenario, impro ved their self-perceived ability to manage a decompensating patient, and solidified the imp ortance of a cohesive health care team.

The adult gerontology acute care nurse practitioner (AGACNP) scope of practice has expanded over the past decade, and as a result, AGACNPs have been increasingly and successfully employed as health care providers in RRT leadership positions (Kapu, Wheeler, & Lee, 2014; Landsperger et al., 2011; Morse, Warshawsky, Moore, & Pecora, 2006; Pirret, 2008; Sonday, Grecsek, & Del Casino, 2010). In addition to improving inpatient morbidity and mortality rates, the inclusion of nurse practitioners in RRT leader positions has been associated with expedited transfer of critically ill patients to intensive care units, enhanced communication with patients' primary care teams, and increased levels of nursing satisfaction (Kapu et al., 2014; Morse et al., 2006; Scherr, Wilson, Wagner, & Haughian, 2012).

AGACNPs serving in the RRT role must be able to quickly adapt to an unfamiliar practice environment, build rapport with the current health care providers taking care of the patient, and assess a patient's condition. To expedite medical management, effective leadership and communication is required for the rapid construction of a cohesive intradisciplinary team at a patient's bedside. However, AGACNP students may have educational gaps in preparation for this role, including limited opportunities to participate in an RRT leader position during the clinical rotations of their educational trajectory.

The registered nurse (RN) is uniquely positioned to be one of the first individuals to identify cardiovascular, respiratory, and neurological indicators of patient decline, yet many RNs lack the knowledge and confidence to successfully initiate RRT activation (Astroth, Woith, Stapleton, Degitz, & Jenkins, 2013; Bagshaw et al., 2010). Like their AGACNP counterparts, RN students are required to complete inpatient clinical rotations in adult hospital settings as part of their degree requirements. However, during their clinical rotations, RN students may never have the opportunity to participate in the intradisciplinary collaboration and management of acutely decompensating patients. This detrimental combination of insufficient educational preparation and experience contributes to impaired utilization of available resources during acute patient decline, delayed organizational RRT activation, adverse patient outcomes, and increased health care costs (Asroth, Woith, Jenkins, Hesson-McInnis, 2017; Braaten, 2015; Jenkins, Asroth, & Woith, 2015; Winters et al., 2013).

High-fidelity simulation has been identified as an educational method that improves RN RRT activation when appropriate patient indicators are present, enhances team collaboration, and reduces the number of failure-to-rescue incidents in hospitalized patients (Bogossian et al., 2014; Kegler, Dale, & McCarthy, 2012; Sittner, Schmaderer, Zimmerman, Hertzog, & George, 2009). The purpose of this collaborative, high-fidelity simulation series was to provide AGACNP and RN students in the last semester of their educational programs with the experience of managing a decompensating patient jointly in an unfamiliar environment. The objectives of this simulation series for AGACNP students included practicing effective communication and leadership skills in stressful situations; forming a cohesive health care delivery team with other unknown health care providers; identifying differential diagnoses and ordering appropriate diagnostic testing; initiating evidence-based medical management; and debriefing team members after the scenario conclusion. The objectives of this simulation series for RN students included identifying clinical indications for RRT activation; managing an acutely decompensating patient until a designated RRT member arrived; practicing clear communication in high-stress environments; and engaging collaboratively as an intradisciplinary team member.

Theoretical Framework

Constructivism served as the theoretical framework used to guide the development of this simulation experience. Constructivism suggests that learning is a developmental process in which new knowledge is constructed by building upon existing knowledge through an interpretation of personal experience (Brandon & All, 2010; Candela and Billings, 2017). A student-centered activity such as simulation fosters active learning; students focus on application of concepts rather than the memorization of large amounts of content, and faculty act as facilitators during the simulation experience (Candela and Billings, 2017). The social learning theory, an example of constructivist theory, suggests that construction of knowledge also occurs and is enhanced by the interaction with others and through modeling of behavior from the observations of others (Bahn, 2001; Candela and Billings, 2017). An intradisciplinary simulation experience where undergraduate and graduate nurses collaborate to provide evidence-based care to acutely ill patients would serve as the environment in which each student develops knowledge through both application of learned content and through interactions with nursing colleagues.

Material and Methods

Setting

The simulation experience used and followed the International Nursing Association Clinical Simulation and Learning (INASCL) Standards of Best Practice for Simulation Facilitation in all aspects of the simulation design and implementation (INASCL, 2016). The simulation series took place in the simulation center of a large, private nursing school in the Southeastern United States. The simulation bay was equipped with a Laerdal SimMan® 3G high-fidelity mannequin, standard hemodynamic monitoring equipment along with a monitor, and other items commonly found in a hospital patient room such as an intravenous pump, an oxygen regulator, and a suction regulator and canister. Additional medical supplies and simulated medications were available to the participants upon request. All simulations were facilitated by faculty who taught in a simulation course and the simulation center staff. Consistent with the criterion one of the INASCL Standards of Best Practice for Simulation Facilitation, all the faculty and simulation center staff had previously received formal training in health care simulation from highly regarded, nationally recognized simulation organizations (INASCL, 2016). In addition, all faculty and staff members had several years of facilitating high-fidelity simulation experiences.

Participants

As emphasized in Criterion Two of the INASCL Standards of Best Practice for Simulation Facilitation, the simulation series was designed to be congruent with the educational preparation and learning needs of the participants (INASCL, 2016). Participants in the RRT simulation series were AGACNP students enrolled in an advanced simulation course and RN students enrolled in a clinical course at a large, private nursing school in the Southeastern United States. All participants in the convenience sample were students in their last semester of their educational programs. Participants were made aware of the optional survey after their simulation experience. Participation in the survey after the simulation experience was voluntary and had no bearing on course grade or academic status. An organizational institutional review board approval was obtained for the project.

Tool for Outcome Evaluation

The tool for outcome evaluation was a pen and paper survey which was created by doctorally prepared course faculty with formal training in item and survey development. The survey was reviewed for conceptual clarity and content validity by two doctorally prepared faculty with formal simulation training and piloted before utilization with participants. Two different versions of the survey were created to capture the objectives for each learner group (one version for the AGACNP student group and one version for the RN student group). Each item on the survey allowed the RN or AGACNP students to score their perspective of their simulation experience on a five-point Likert scale. Likert scale answer responses included strongly agree, agree, neutral, disagree, or strongly disagree. The last component of each survey asked students to provide optional narrative comments regarding their simulation experience.

Implementation Steps

All aspects of the simulation took place in the simulation center and classrooms of a large, private nursing school in the Southeastern United States. The mixed-method, three-hour simulation series consisted of a prebriefing period, three high-fidelity simulation scenarios with group debriefing after each scenario, and a summative debriefing period at the end of the entire simulation experience. Each of the three simulation scenarios was conducted at a ''simulation station,'' and all RN students rotated through each of the three simulation stations during the simulation experience.

Prebriefing

The standards outlined in Criterion Three of the INASCL Standards of Best Practice for Simulation Facilitation were followed during the prebriefing period for participants (INASCL, 2016). During the 30-minute prebriefing session,

faculty guided RN students through indications for RRT activation and reviewed the equipment and medications commonly found on an adult code cart. RN students were given a tour of the high-fidelity simulation laboratory and oriented to the high-fidelity mannequin; computerized documentation and medical record systems; patient monitors and medical equipment; and available resources such as the medication-dispensing system and phone system. Two AGACNP students serving as RRT members had a separate prebriefing period at an off-site ''call room'' location, which included a review of the RRT leader responsibilities, orientation to an RRT cell phone, and orientation to an RRT bag that included advanced airway devices and simulated intravenous medications.

High-fidelity Simulation Experiences and Debriefing

All simulation scenarios consisted of diagnoses or problems commonly associated with RRT activation (Smith, Santamaria, Faraone, Holmes, & Reid, 2017). All the simulation scenarios were piloted a minimum of three times through use in previous simulations with similar groups of learners (Appendix A).

RN students were randomly assigned into groups of three RN students per group before rotating through the three simulation stations. At the first station, the RN student group directly participated in a 20-minute, high-fidelity simulation. During this simulation scenario, RN students conducted a routine physical assessment on the high-fidelity mannequin. During the patient encounter, RN students encountered an unanticipated patient issue, and the patient rapidly demonstrated clear indications for RRT activation (Appendix B). RN students were responsible for recognizing these indications and then addressing the problem.

Throughout the simulation, RN students had the option of calling a covering ''provider'' who knew little of the patient or initiating an RRT phone call to the off-site AGACNP students. If the provider was contacted, appropriate but limited orders or instructions to call the RRT might be given based on the RN student report of the situation. When provider orders were given, minimal response would be seen in the patient, and RRT activation would be ultimately indicated. Thus, given the presentation of multiple options, RN students were allowed to work through the patient problem without necessarily generating RRT activation during their initial entrance into the patient room.

During phone communication upon RRT activation, RN students presented a report of the relevant information about patient and situation using the Situation, Background, Assessment, and Recommendation (SBAR) format. On certain occasions, AGACNP students serving as members of the RRT gave RN students verbal orders to assist with patient stabilization while the AGACNP students were on the way to the patient's bedside. Once the AGACNP students arrived to the simulated patient's room, AGACNP and RN students further exchanged information about the patient's history, medications, signs, and symptoms and then worked collaboratively as a team to care for the simulated patient and resolved the underlying cause of acute decompensation.

Medical management commonly included the administration of blood products, intravenous medications, and intravenous fluids; implementation of advanced practice procedures such as cardioversion, endotracheal intubation, needle decompression of the chest, and central line and arterial line placement; and application of advanced cardiac life-support algorithms. Toward the end of each scenario, the simulated patient's vital signs would reflect a resolution of hemodynamic instability, and faculty would conclude the scenario.

After the conclusion of the scenario, AGACNP and RN students had a combined debriefing period. As AGACNP students had substantial experience with high-fidelity simulation and debriefing as part of their previous educational courses, AGACNP students assisted the trained faculty moderators in providing a group debriefing for all students. At the end of the combined debriefing period, faculty then separately debriefed the AGACNP students on the combined high-fidelity simulation and group debriefing experience. This short debriefing period focused more directly on the leadership responsibilities of the AGACNP in an RRT leadership position.

At the second station, the initial RN student group was placed in a conference room and watched a second RN student group of their peers and the AGACNP RRT student group participate in providing care for a different patient with a different type of problem via a live televised feed. The RN students in the conference room served as an ''on-call'' resource if additional individuals were needed to manage the situation in the simulation bay. If additional help was requested by individuals participating in the scenario, RN students would leave the conference room and then participate in the scenario. Again, AGACNP students assisted a faculty moderator in leading a debriefing of the scenario with the second group. The RN students who watched or participated in the simulation as an on-call resource were included in the debriefing to allow their perspective to be part of the discussion.

At the third station, a faculty member discussed patient management strategies with the RN student group while they observed a third group of their RN student peers during an acute situation simulation. As seen previously, AGACNP and RN students then had a combined debriefing period after the scenario during which AGACNP students assisted a faculty moderator in leading the group debriefing. The RN students who had observed with the faculty moderator were also included in the debriefing to allow their perspective as observers to be discussed. At the end of the combined debriefing period, faculty separately debriefed the AGACNP students on their experience.

The recommendations discussed in Criterion Four and Five of the INASCL Standards of Best Practice for Simulation Facilitation were followed for all debriefing periods and included the consistent delivery of cues to

guide the debriefing process and the ongoing support of participants (INASCL, 2016). The debriefing process for each of the three scenarios included allowing AGACNP and RN students to verbalize their understanding of the scenario and reflect back upon their medical decision-making, actions, feelings, thoughts, and communication patterns. It also allowed course faculty to provide feedback to the AGACNP and RN students in regard to the students' decision-making processes and interactions. During the debriefing sessions, a strong emphasis was placed on effective communication strategies and teamwork patterns.

After all three simulations and debriefings after each of the three scenarios, all AGACNP and RN students were brought together and were jointly debriefed by course faculty. AGACNP and RN students were then provided with an optional pen and paper survey regarding their simulation experience. No participant identifiers were included on the survey that would allow course faculty to link a participant to the evaluation tool. All RN and AGACNP surveys were pooled before evaluation to help preserve anonymity.

Results

A total of 11 AGACNP students (n = 11) and 130 RN students (n = 130) completed all aspects of the simulation experience and the optional survey at the conclusion of the simulation series. As a whole, the survey data reflect that both AGACNP and RN students found the combined simulation experience to be beneficial. All AGACNP students who completed the survey (n = 11) strongly agreed that the scenarios reflected situations they are likely to encounter in the clinical setting and that the collaborative simulation experience allowed them to practice diagnosing and managing patients. Furthermore, all AGACNP students (n = 11) believed that the simulation series allowed them to practice leading a team during a challenging patient situation and assisted them in recognizing the importance of health care team cohesion. All AGACNP students strongly agreed that the simulation series allowed them to practice their communication skill and that the experience helped them identify ways to improve their communication in the future, and all AGACNP students strongly agreed that the simulation made them feel more confident in their abilities (Appendix C).

All RN participants who completed the simulation experience and survey (n = 130) strongly agreed that the simulation experience allowed them to practice managing an acute patient scenario, and 99.2% (n = 129) of all strongly agreed that the experience helped them identify clinical criteria for RRT activation. In addition, 98.4% (n = 128) of the respondents strongly agreed that the simulation experience allowed them to work collaboratively as a team member, and 99.2% (n = 129) strongly agreed that the simulation experience helped them recognize the importance of a cohesive health care team. The majority (97.7%, n = 127) strongly agreed that the simulation experience gave them the opportunity to practice their communication skills with intradisciplinary health care team members, and all RN students strongly agreed that the experience assisted them in identifying ways that they could improve their communication skills with patients and health care team members (Appendix D).

Discussion

Up to this point in their training programs, neither the AGACNP nor the RN student groups had had the opportunity to work together in a collaborative learning environment. RN students had participated in basic care simulation scenarios with faculty in their clinical courses. The AGACNP students had spent considerable amounts of time during their simulation courses working together and collaboratively managing acutely ill, simulated patients; however, all previous simulations were conducted only with classmates and standardized simulation actors.

The survey data support that the learning objectives for the intradisciplinary, high-fidelity simulation experience were met. This simulation series allowed AGACNP students to practice their role as health care delivery team leaders with unfamiliar teammates before graduation and moving into the workforce. Based on the survey data, the experience provided AGACNP students the opportunity to identify and practice leadership skills in stressful situations with unfamiliar team members in a collaborative fashion. The simulation exercise reinforced their views that a cohesive team is necessary in caring for decompensating patients. Furthermore, the data reflect that AGACNP students found it helpful that the simulation experience allowed them to practice communication skills with intradisciplinary health care team members. This experience helped them recognize areas for ongoing improvement in both their communication and leadership skills. Ultimately, AGACNP students felt that the experience left them feeling more confident in leading teams to care for critically ill patients.

Based on the survey data, the simulation series also introduced RN students to acute clinical situations that they may encounter in clinical practice, assisted them in identifying criteria for RRT activation, and provided them with a safe environment for both didactic and experiential learning. Furthermore, the data reflect that RN students found it helpful that the simulation experience allowed them to practice communication skills with intradisciplinary health care team members and helped them recognize areas for ongoing improvement in communication. In addition, RN students found it helpful that the simulation experience allowed them to work collaboratively as a health care team while solidifying the necessity of a cohesive health care team.

Conclusion

Although relatively commonplace in acute care settings, whether at the bedside or in advanced practice roles, nurses and nurse practitioners must rely on critical thinking skills during fast-paced, urgent-care situations, regardless of the practice site or population served. Effective communication and collaboration, by both team leader and team member, are skills vital to the successful intradisciplinary management of the acutely ill, unstable patients. Intradisciplinary simulations are an effective learner-centered method of training that allows students to build on existing knowledge through experiences in which they must not only apply clinical skill but also communicate clearly and effectively to succeed.

In this experience, both RN and AGACNP students reported value in participating in intradisciplinary RRT simulations. Furthermore, all learners identified that the simulation experience assisted them in refining their clinical skill, working with others in dynamic situations, and communicating with members of the health care team. This project serves to strengthen the body of literature that supports the use of high-fidelity simulation for team collaboration and communication training in high-stress environments. Additional research should be aimed at evaluating the benefit of simulated RRT intradisciplinary training on clinical outcomes.

References

Astroth, K. S., Woith, W. M., Jenkins, S. H., & Hesson-McInnis, M. S. (2017). A measure of facilitators and barriers to rapid response team activation. *Applied Nursing Research*, *33*, 175-179.

Astroth, K. S., Woith, W. M., Stapleton, S. J., Degitz, R. J., & Jenkins, S. H. (2013). Qualitative exploration of nurses' decisions to activate rapid response teams. *Journal of Clinical Nursing*, *22*(19-20), 2876-2882.

Bagshaw, S. M., Mondor, E. E., Scouten, C., Montgomery, C., SlaterMacLean, L., Jones, S. A., & Gibney, N. (2010). A survey of nurses' beliefs about the medical emergency team system in a Canadian tertiary hospital. *American Journal of Critical Care*, *19*(1), 74-83.

Bahn, D. (2001). Social learning theory: Its application in the context of nurse education. *Nursing Education Today*, *21*(2), 110-117.

Bogossian, F., Cooper, S., Cant, R., Beauchamp, A., Porter, J., Kain, V., …, & Phillips, N. M. (2014). Undergraduate nursing students' performance in recognising and responding to sudden patient deterioration in high psychological fidelity simulated environments: An Australian multicentre study. *Nurse Education Today*, *34*(5), 691-696.

Braaten, J. S. (2015). Hospital system barriers to rapid response team activation: A cognitive work analysis. *American Journal of Nursing*, *115*(2), 22-32.

Brandon, A., & All, A. (2010). Constructivism theory analysis and application to curricula. *Nursing Education Perspectives*, *31*(2), 89-92.

Candela, L. (2017). Theoretical foundations of teaching and learning. In Billings & Halstead. (Ed.), *Teaching in nursing: a guide for faculty* (5th ed).. St. Louis: Elsevier.

INACSL Standards Committee. (2016). INACSL standards of best practice: Simulation Facilitation. *Clinical Simulation in Nursing*, *12*(S), S16-S20.

Institute for Healthcare Improvement. (2006). Five million lives campaign: An initiative of the institute for healthcare improvement. Retrieved from http://www.ihi.org/about/Documents/5MillionLivesCampaignCaseStatement.pdf. (Accessed 7 December 2018).

Jenkins, S. H., Astroth, K. S., & Woith, W. M. (2015). Non-critical-care nurses' perceptions of facilitators and barriers to rapid response team activation. *Journal for Nurses in Professional Development*, *31*(5), 264-270.

Kapu, A. N., Wheeler, A. P., & Lee, B. (2014). Addition of acute care nurse practitioners to medical and surgical rapid response teams: A pilot project. *Critical care nurse*, *34*(1), 51-59.

Kegler, A. L., Dale, B. D., & McCarthy, A. J. (2012). The use of high-fidelity simulation for rapid response team training: A community hospital's story. *Journal for Nurses in Staff Development*, *28*(2), 50-52.

Landsperger, J. S., Williams, J. K., Hellervik, S. M., Chassan, C. B., Flemmons, L. N., Davidson, R. S., …, & Wheeler, A. P. (2011). Implementation of a medical intensive care unit acute-care nurse practitioner service. *Hospital Practice*, *39*(2), 32-39.

Morse, K. J., Warshawsky, D., Moore, J. M., & Pecora, D. C. (2006). A new role for the ACNP: The rapid response team leader. *Critical Care Nursing Quarterly*, *29*(2), 137-146.

Pirret, A. M. (2008). The role and effectiveness of a nurse practitioner led critical care outreach service. *Intensive and Critical Care Nursing*, *24*(6), 375-382.

Sarani, B., & Scott, S. (2010). Rapid response systems: From implementation to evidence base. *Joint Commission Journal on Quality and Patient Safety*, *36*(11), 514-517.

Scherr, K., Wilson, D. M., Wagner, J., & Haughian, M. (2012). Evaluating a new rapid response team: NP-led versus intensivist-led comparisons. *AACN Advanced Critical Care*, *23*(1), 32-42.

Sittner, B. J., Schmaderer, M., Zimmerman, L., Hertzog, M., & George, B. (2009). Rapid response team simulated training for enhancing patient safety (STEPS). *Clinical Simulation in Nursing*, *5*(3), e119-e127.

Smith, R. J., Santamaria, J. D., Faraone, E. E., Holmes, J. A., & Reid, D. A. (2017). Rapid response team diagnoses: Frequencies and related hospital mortality. *Critical Care and Resuscitation*, *19*(1), 71-80.

Solomon, R. S., Corwin, G. S., Barclay, D. C., Quddusi, S. F., & Dannenberg, M. D. (2016). Effectiveness of rapid response teams on rates of in-hospital cardiopulmonary arrest and mortality: A systematic review and meta-analysis. *Journal of Hospital Medicine*, *11*(6), 438-445.

Sonday, C., Grecsek, E., & Del Casino, P. (2010). Rapid response teams: NPs lead the way. *The Nurse Practitioner*, *35*(5), 40-46.

Winters, B. D., Weaver, S. J., Pfoh, E. R., Yang, T., Pham, J. C., & Dy, S. M. (2013). Rapid-response systems as a patient safety strategy: A systematic review. *Annals of Internal Medicine*, *158*(5 Part 2), 417-425.

Appendix A

Table 1 Simulation Scenario Diagnoses or Problems

Anaphylaxis
Acute arterial occlusion after cardiac catheterization
Acute mental status change secondary to narcotic overdose
Dysrhythmias Atrial fibrillation secondary to hypokalemia
Symptomatic bradycardia
Torsades des pointes
Unstable paroxysmal atrial fibrillation
Ventricular fibrillation
Ventricular tachycardia in hyperkalemia
Hemolytic transfusion reaction
Pulmonary embolus
Subdural hematoma
Sepsis with hyperactive delirium
Sepsis with hypoactive delirium
Tension pneumothorax
Transfusion-related acute lung injury
Venous air embolism
Vascular graft rupture

Appendix B

Table 2 Indications for Rapid Response Team Activation

Alterations in vital signs:
Respiratory rate <8 or >25 breaths per minute
Oxygen saturation <90% or a rapid increase in supplemental oxygen requirements
Heart rate <40 or >130 beats per minute
Change in heart rhythm with hemodynamic instability
Systolic blood pressure < 90 mmHg
Change in level of consciousness or mental status
Signs or symptoms of stroke
New onset of chest pain

Appendix C

Table 3 AGACNP Student Survey Results

Survey Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The simulation scenarios reflected a real-life situation that I may experience as an adult gerontology acute care nurse practitioner.	81.8% (n = 9)	18.2% (n = 2)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience gave me the opportunity to lead the management of a challenging patient situation.	90.9% (n = 1)	9.1% (n = 1)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience helped me learn how to diagnose and manage patients in acute situations.	81.8% (n = 9)	18.2% (n = 2)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience helped me recognize the skill set needed to lead a challenging clinical scenario.	90.9% (n = 1)	9.1% (n = 1)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience allowed me to work collaboratively as a team member.	90.9% (n = 1)	9.1% (n = 1)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience helped me recognize the importance of a cohesive health care team.	90.9% (n = 1)	9.1% (n = 1)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience provided me with the opportunity to practice my communication skills with other health care team members.	81.8% (n = 9)	18.2% (n = 2)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience helped me identify ways that I can improve my communication with patients and health care team members.	81.8% (n = 9)	18.2% (n = 2)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience made me more confident in my ability to care for patients in challenging situations.	81.8% (n = 9)	18.2% (n = 2)	0% (n = 0)	0% (n = 0)	0% (n = 0)

Data presented as raw numbers and percentages of the sample. Percentages rounded to the nearest tenth.
Note: AGACNP = Adult gerontology acute care nurse practitioner.

Appendix D

Table 4 RN Student Survey Results

Survey Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The simulation scenario gave me the opportunity to participate in the management of a challenging patient situation.	77.7% (n = 29)	22.3% (n = 101)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation scenarios reflected a real-life situation that I may experience as a registered nurse.	71.5% (n = 93)	25.4% (n = 33)	2.3% (n = 3)	0.8% (n = 1)	0% (n = 0)
The simulation experience helped me recognize signs and symptoms that warrant a rapid response call.	73.1% (n = 95)	26.2% (n = 34)	0.8% (n = 1)	0% (n = 0)	0% (n = 0)
The simulation experience allowed me to work collaboratively as a team member.	74.6% (n = 97)	23.8% (n = 31)	1.5% (n = 2)	0% (n = 0)	0% (n = 0)
The simulation experience helped me recognize the importance of a cohesive health care team.	90.8% (n = 118)	8.5% (n = 11)	0.8% (n = 1)	0% (n = 0)	0% (n = 0)
The simulation experience provided me with the opportunity to practice my communication skills with other health care team members.	63.1% (n = 82)	34.6% (n = 45)	2.3% (n = 3)	0% (n = 0)	0% (n = 0)
The simulation experience assisted me in identifying ways that I can improve my communication with patients and health care team members.	70.0% (n = 91)	30.0% (n = 39)	0% (n = 0)	0% (n = 0)	0% (n = 0)
The simulation experience helped me recognize the skill set needed to manage a challenging clinical scenario.	66.2% (n = 86)	32.3% (n = 42)	1.5% (n = 2)	0% (n = 0)	0% (n = 0)
The simulation experience made me more confident in my ability to care for patients in challenging situations.	45.4% (n = 59)	43.1% (n = 56)	8.5% (n = 11)	3.1% (n = 4)	0% (n = 0)

Data presented as raw numbers and percentages of the sample. Percentages rounded to the nearest tenth.
Note: RN = registered nurse.