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Poster #101

DEBRIEFING POST CODES TO IMPROVE TEAMWORK BEHAVIORS IN REAL LIFE CARDIOPULMONARY ARREST EVENTS

Presentation Category: Debriefing

Tara Mahramus, MSN, CNS, CCRN, COIS,1 Mai Vo, MD,1 Mindi Anderson, PhD, ARNP,2 CPNP-PC, CHSE-A,2 Daleen Penoyer, PhD, RN, CCRP, FCCM,1

1ORLANDO HEALTH, ORLANDO, FLORIDA, UNITED STATES; 2ORLANDO HEALTH AND UNIVERSITY OF CENTRAL FLORIDA, ORLANDO, FLORIDA, UNITED STATES

Introduction: Debriefing is an interactive learning process that provides opportunity for teams to reflect upon their actions, performance and thought processes after an event. Debriefing are used in healthcare after cardiopulmonary arrest (CPA) events to improve communication, leadership, and situational awareness. Despite the value of debriefing, they are often not done. At the study site, baseline debriefings post CPA events were documented only 3% of the time. A meta-analysis revealed that individual and team performances improved by 25% when debriefings were done post events.2 This prompted the investigators to test an intervention of training a group of interprofessional responders to do structured debriefings after real life CPA events. Research questions for the study were: Does an educational intervention and implementation of post-CPA debriefing process improve interprofessional teamwork performance in real life CPA events, impact team members’ perception of post-CPA debriefings, and increase the number of documented debriefings?

Methods: A prospective, before-and-after quasi-experimental, mixed methods design was used for this study. Teamwork tool5 data was collected for two months pre study to measure teamwork perceptions of responders to CPA events. A one-time educational debriefing intervention was offered three times for team members (n=47). The intervention included education on principles of teamwork behaviors, debriefing components, and exercises for role play of debriefing after simulated CPA events. Participants were assigned various roles during to gain experience as debriefing leader or team member, modeled some aspects of role.6

Results: Data was collected for eight months after the debriefing education. Subjects were given three open-ended questions about their experience with debriefing. Subjects were given three open-ended questions about their experience with debriefing. Among 55 nursing colleges that run the simulation centers, 87.3% of them integrated simulation education in the undergraduate program as a required course, while 12.7% did not. Over 95% of subjects responded that simulation-based nursing education was implemented in the majority of the nursing courses (over 95%). In prebriefing, role allocation in teamwork for simulation was the most frequently applied debriefing as assessment model.3

Conclusion: While no significant differences were found in teamwork scores before and after the debriefing intervention, we found that team members valued debriefings after codes and found them beneficial to detect opportunities for improvement, communication, and team functioning. It is possible the TEAM tool5 was not a valid measure for improvements in team functioning related to increased performance of debriefings. A convenience sample of team members who participated in the evaluations regardless if they participated in the education intervention or if a debriefing was done at the CPA event attended may be limitations. This may have also influenced their TEAM tool5 scores. However, we believe the TEAM tool5 may be useful in evaluating teamwork in real life CPA events where all subjects attend the debriefing education class and participate in a debriefing post CPA. Team members valued debriefings and a marked improvement in the number of debriefings post-CPA events was seen after emphasis on this type of intervention.

Poster #102

DEBRIEFING PRACTICES IN SIMULATION-BASED NURSING EDUCATION IN SOUTH KOREA

Presentation Category: Debriefing

Sunghee Kim,1 MiKong Kim2

1CUNG-ANG UNIVERSITY, SEOUL, KOREA (REPUBLIC OF)
2SUNGSHIN WOMENS UNIVERSITY, SEOUL, KOREA (REPUBLIC OF)

Introduction: Simulation-based education can effectively substitute the traditional clinical practicum in all the core courses across the prelicensure nursing curriculum. Simulation-based learning is composed of three steps: pre briefing, simulation experience, and debriefing. During debriefing, learners reflect on the simulation experience using metacognitive strategies under the guidance of an instructor who provides the learners with feedback on actual performance, factual errors, and cognitive reconstruction. Students benefit from debriefing activities in simulation-based education, by discovering their mistakes and learning how to correct them. It is felt that there is a critical need to develop standardized debriefing guidelines and evaluation models for more effective debriefing activities. This could be standardized guidelines and approaches to simulated education. The purpose of this study was to identify how debriefing was practiced in simulation-based nursing education in Korea in order to provide basic information for the development of standardized debriefing guidelines in simulation-based nursing education in Korea.

Methods: This is an exploratory survey study to identify current debriefing practices in simulation-based nursing education among nursing faculty members in Korea. Ninety-six nursing faculty members responsible for simulation education participated in this study from January to April, 2015. Data was collected using a revised version of Fey’s Final Survey Questions: Debriefing Practices (2014), and analyzed by descriptive statistics. The instrument used in this study was Fey’s Final Survey Questions: Debriefing Practices (2014), which was translated into Korean by the first researcher after getting the permission from the author. The Korean version of the instrument was verified by six experts in simulation to confirm the suitability of the contents. Out of 41 question items in the original instrument, six were excluded due to their inapplicability to the Korean situation and five were added consisting of 40 questions for final use. Data collected were analyzed using SPSS Win 21.0 statistical program.

Results: Among 55 nursing colleges that run the simulation centers, 87.3% of them integrated simulation education in the undergraduate program as a required course, while 12.7% did not. Over 95% of subjects responded that simulation-based nursing education was implemented in the majority of the nursing courses (over 95%). In prebriefing, role allocation in teamwork for simulation was the most frequently applied activity to students (94.8%). The most commonly cited method for recording simulation events was the use of automated audiovisual recording systems (81.5%). The most frequently applied models for debriefing were the Gatter – Analyze – Summarize (GAS) model (40.6%), followed by the What Went Well - What would like to Change - How to Change (Plus-Delta) model (9.4%), and the Beginning - Introduction - Opening model (NLLN/SIRC Model) (4.2%), respectively. On the other hand, only 17.7% of the subjects applied debriefing assessment model. Simulation instructors who had completed debriefing training actively are more likely to facilitate student discussion of emotional reactions to simulation and provide feedback during debriefing.

Conclusion: This study reveals that those who have experience of training for debriefing are more likely to provide the students with the opportunity of discussing their emotional reactions to simulation and with feedback during debriefing. This result should be expanded to have a deeper insight into the effectiveness of debriefing training with a different body of faculty and students focused on the evaluation of various theories tailored for debriefing activities. Also, there is a need to broaden the perspective on global educational standards by networking with international simulation educators. There is a need to develop more systematic and effective training programs that encompass theories for implementing and evaluating debriefing practices in simulation-based nursing education in Korea. This study will provide baseline data to aid the development of an efficient simulation curriculum with standardized debriefing models and guidelines in the future in Korea.

References available upon request

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out physician orders. Each student assignment was evaluated in progression to determine the level of Benner’s novice to expert by looking at the scores between one and five (novice-1, advance beginner-2, competent-3, proficient-4, and expert-5). The students combined scores for each of the scenarios were analyzed using a student t-test to compare all student assignments for each scenario to the following one, and a significance level was set at 0.05.

Results: The results showed that there were no significant differences (p = 0.097) between the first and second assignments for all groups, however there was a significant difference (p = 0.001) between the first assignment and the fourth assignment which showed that the group improved their scores from the first to the last assignment. The mean scores of the first assignment was 2.57 (SD = 0.79) which suggest that students were between advance beginner’s and the competence levels according to Benner’s theory. While the fourth assignment total mean scores were 3.99 (SD = 1.01) and showed that students were between the competent and proficient levels by the end of the semester. Additionally, the scores provided by faculty grading each of the assignments ranged between total group mean scores of 3.00-4.50 on the first assignment to 4.00-4.50 on the last assignment, and there were no significant differences between faculty scores for each week. However, there was a significant (p = 0.01) difference in faculty grading values when the total mean scores from week one was compared to week four.

Conclusion: In Conclusion, an innovative electronic education program immersing both Vsim scenarios and an EMR system into the undergraduate nursing curriculum may help students become proficient with clinical documentation and improve their competence and confidence in patient centered care. Although this study showed minor changes between each work weeks, there was a significant change between week one and four which suggests that clinical documentation and critical thinking skills significantly improve among undergraduate nursing students within the first semester. This study also showed that student level of knowledge according to Benner’s theory could be scored on first semester students’ simulated assignments. Therefore, it is vital to expose students to electronic systems before entering the clinical setting as a way to reduce fears and mistakes. The results from this study may also have global implications for undergraduate nursing programs to provide students with a valuable learning experience and faculty with a tool to measure clinical documentation, medication or medical errors, and patient outcomes.

References available upon request

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Poster #172

VIRTUAL STANDARDIZED PATIENT CASES IN A HIGH VALUE CARE CURRICULUM: PILOT TESTING FOR CORRELATION WITH OTHER MARKERS OF PERFORMANCE

Presentation Category: Learner Assessment

William Bond, MD, MS, Teresa Lynch, MD, Matthew Maschner, MD, Jessica Fish, MS, Jeremy McGarvey, MS, Jason Taylor, MD, Dipen Kumar, BS, Kyle Mou, BA, Dilip Mahale, MD, Thomas Talbot, MD, Meenakshi Ayer, MD, JUMP SIMULATION, PEORIA, ILLINOIS, UNITED STATES; UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE AT PEORIA/OSF HEALTHCARE, PEORIA, ILLINOIS, UNITED STATES; JUMP SIMULATION/OSF HEALTHCARE, PEORIA, ILLINOIS, UNITED STATES; OSF HEALTHCARE, PEORIA, ILLINOIS, UNITED STATES; UNIVERSITY OF SOUTHERN CALIFORNIA INSTITUTE FOR CREATIVE TECHNOLOGIES, LOS ANGELES, CALIFORNIA, UNITED STATES; UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE AT PEORIA, PEORIA, ILLINOIS, UNITED STATES

Introduction: High Value Care (HVC) refers to testing and treatment strategies that provide value for patients. HVC strategies depend on good history and physical skills to drive risk stratification and clinician choices and HVC topics are now part of internal medicine board exams (1). Virtual standardized patient (VP) simulation (2, 3) provides a novel method for developing these clinical reasoning skills through automated assessments and feedback. This simulation allows for rapid generation of multiple realistic, standard avatar responses, and feedback linked to learner choices. In this pilot study, we sought to explore the feasibility of incorporating VP simulation into a existing HVC curriculum that included didactics and actor-based standardized participants (SP). We looked for correlations between learner performance in VP simulation, SP simulation, and the in-training examination (ITE) (boards’ preparation examination) to explore relationships between VP and other variables.

Methods: This was a prospective crossover pilot study. Learners were first-year residents in categorical internal medicine, medicine-pediatrics, and preliminary residency programs. After stratified block randomization and completion of the same two didactics, learners were presented with either a series of VP or SP cases and were crossed over at the next training. We used the USC Standard Patient Natural Language Processing (NLP) avatar-based platform to create 8 VP cases that included the following modules completed in order: interview, physical, diagnosis, testing, and treatment. Existing curriculum included 4 SP cases, performance on SP cases was assessed via a checklist completed by faculty observers (FOC), and a chart note grading rubric (CGR). Performance on VP cases was automatically scored by the platform based on faculty-chosen, critical items achieved by the learner. History items on the FOC and CGR were used for statistical correlations with ITE scores (total and HVC portion).

Results: 14 resident learners each completed both simulation methods. When averaged across cases within a simulation, there was a trend toward positive correlation found between scores in the SP cases (CGR + FOC) (M = 58.5, SD = 8.4) and the VP cases (M = 56.2, SD = 9.6), r = 0.34, P = 0.2. When examining performance on the simulation cases as a group by learning method, a positive correlation of 0.38 (p = 0.17) was found between SP history scores and the ITE HVC percent correct, and a correlation of 0.33 (p = 0.25) was found between the SP history scores and the ITE total percent correct. No trend was found between VP performance and ITE. Within the VP cases, pulmonary embolism history scores were mildly associated with the ITE total percent correct score (r = 0.42, P = 0.13). Within the SP cases, headache history scores showed some association with ITE HVC score (r = 0.53, P = 0.05) andsyncope history scores were strongly associated with ITE total score (r = 0.72, P = 0.003).

Conclusion: Incorporating VP simulation into the HVC curriculum proved feasible. In prior work not described here, we examined inter-rater reliability for our FOC and CGR for SP simulation and found them to be acceptable. In other concurrent work, we are examining human two-rater grading of learner VP history transcripts, and comparing to automated grading by the VP platform. Further, we believe the automated grading is acceptable for early correlation testing. Our results, while not statistically significant, suggest that performance on VP simulation is positively correlated with performance on SP simulation and that further study is warranted. Lack of correlation between VP and ITE scores could reflect the limitations of small sample size. We plan to increase our sample size and continue testing for correlation between VP and other measures.

References available upon request

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Poster #173

A COMPUTER-BASED TUTOR TO TEACH NURSING TRAUMA CARE THAT WORKS AS AN ADJUNCT TO HIGH FIDELITY SIMULATION

Presentation Category: Nursing Education

Christopher Garrison, PhD, RN, CNE,1 Frank Ritter, PhD,2 Benjamin Bauchwitz, BS,3 James Neishous, PhD,4 Peter Weyhrauch, PhD5
1 PENN STATE COLLEGE OF NURSING, UNIVERSITY PARK, PENNSYLVANIA, UNITED STATES; 2 PENN STATE UNIVERSITY COLLEGE OF INFORMATION SCIENCE AND TECHNOLOGY, UNIVERSITY PARK, PENNSYLVANIA, UNITED STATES; 3 CHARLES RIVER ANALYTICS, CAMBRIDGE, MASSACHUSETTS, UNITED STATES

Introduction: Educators are challenged to prepare nurses for low-volume, high acuity clinical problems such as trauma. It is difficult to provide learners with hands-on practice without compromising the quality of care, and the lack of opportunity for hands-on clinical practice creates a need for alternate learning approaches. The use of high fidelity manakin simulators in nursing education is well accepted and supported by literature 2,3, but this approach is often resource intensive and expensive.4 Computer-based tutors (CBTs) provide a cost-effective adjunct teaching and simulation tool without risking patient safety 2,4. There is limited evidence for the efficacy of this type of instruc- tion for health professionals; thus, we tested the learning outcomes of a computer-based tutor on trauma care knowledge. We hypothesized that learners using a CBT would demonstrate larger gains in knowledge and better knowledge retention than those randomized to text-based learning.

Methods: This study used an experimental pretest, posttest design. Participants were randomly assigned to either the computer-based tutor on trauma nursing or a control condition (textbook learning). The control condition used sections from the Trauma Nursing Core Course 7th ed. that addressed concepts taught in the tutor. Both groups completed the same pretest knowledge assessment on trauma nursing. Correct answers were not revealed. After completing the pretest, participants completed the learning activities at their own pace. Participants kept a log of time spent and number of tutor pages completed or textbook pages read. Upon completing the learning sessions, participants took the same test on trauma nursing as at pretest to assess knowledge gain. Participants also retook the test 1 month after the posttest. The knowledge test consisted of 50 items on key aspects of the primary and secondary trauma survey and was reviewed by two certi- fied trauma nurses for content validity.

Results: 35 4th year RN students (mean age 21.5, 91% female, 89% white) took the pretest; 34 completed the posttest and 26 completed the 1-month follow-up test. Attrition at 1 month was 16% for the tutor group and 29% to the control group. There was no difference in baseline pretest scores between those randomized to the tutor (M = 26.7, SD = 5.8) and those randomized to the book (M = 28.0, SD = 3.4), t(33) = −0.97, p = 0.34. The hypothesis about learning gains was supported; the tutor had an effect size of 0.98 (using the largest SD). The tutor group had a significantly higher increase in scores at posttest (M = 7.4, SD = 3.6) than the control group (M = 3.7, SD = 3.0, t(32) = 3.3, p = 0.002). The hypothesis about learning retention was not supported. There was no significant difference in score decrease from posttest to 1 month follow-up test between the tutor group (M = 5.5, SD = 3.4), t(26) = 0.40, p = 0.69 and the control group (M = 1.6, SD = 0.6), t(26) = 1.61, p = 0.12.

Conclusion: Use of a computer-based tutor (CBT) led to a larger increase in trauma nursing knowledge than use of a textbook, and the knowledge was retained as well as book-based learning. The effect size of the CBT, 0.98, was relatively high as well—the
average for computer tutors is 0.79. These results provide evidence that CBTs can be used as an effective adjunct to prepare for high cost physical simulations. Limitations of this study include a small sample size and use of a single site. Because this study only assessed declarative knowledge, it is unclear how effective the CBT would have been for training relevant perceptual and decision-making skills. One potential extension of this work is to include a low-fidelity simulation within the tutor and to assess the effectiveness of this expanded tutor against traditional methods like high fidelity manikin simulation and hands-on practice on patients.

References available upon request

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Poster #174

A FOLLOW-UP SURVEY OF AMANAT NURSE MENTORS TRAINED AS PRONTO SIMULATION AND TEAM TRAINING FACILITATORS IN BIHAR, INDIA: ARE SIMULATION FACILITATOR SKILLS TRANSLATED TO OTHER WORK SETTINGS?
Presentation Category: Nursing Education

Mona Sterling,1 Hilary Spindler,2 Susanna R Cohen,2 Jessica Dyer,3 Dlys Walker1
1 INSTITUTE FOR GLOBAL HEALTH SCIENCES, UNIVERSITY OF CALIFORNIA SAN FRANCISCO, SAN FRANCISCO, CALIFORNIA, UNITED STATES; 2UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH, UNITED STATES; 3PRONTO INTERNATIONAL, SEATTLE, WASHINGTON, UNITED STATES

Introduction: Simulation is rapidly becoming a cornerstone of provider training programs around the world. In high-resource settings, simulation is widespread. This is not yet the case in low-resource settings. From 2014 to 2017, CARE India, together with the government of Bihar, implemented the AMANAT mentoring program to improve the quality of obstetric and neonatal care at 320 primary health clinics. 120 nurse mentors were trained in simulation and team-training facilitation using PRONTO’s model, and specific simulation-based activities were integrated into the mentoring curriculum. For programs with a finite lifespan, like the AMANAT nurse mentor program, mentors trained in simulation facilitation move on to other employment opportunities. The aim of this study was to gain an understanding of what nurse mentors went on to do following AMANAT, and if they had the opportunity to use their simulation and team-training knowledge and skills.

Methods: Three months after the conclusion of the program, researchers attempted to reach the nurse mentors by sending an anonymous Qualtrics® survey to 105 former nurse mentors who had participated as trainers in the PRONTO- enhanced mentoring program. We requested their participation in a 10-minute survey, where each question allowed the nurse mentor to skip any question. The survey included demographics, previous and current employment, job title, as well as which type of organization they currently work for. Nurse mentors were also asked to reflect on specific PRONTO training concepts they found to be most important and to elaborate on any barriers or enablers that assisted them in utilizing their learnings in their subsequent work environment. Finally, nurse mentors were encouraged to share a story about how being a nurse mentor may have changed the way they perform their work now. These results were compiled and analyzed for descriptive statistics.

Results: 15 (14% of total surveyed) responses were analyzed from AMANAT nurse mentors ranging from 22 to 36 years old, originating from nine states throughout India. The PRONTO curricular concepts rated most important included simulation/delivering, skills stations, and communication/teamwork. 12 (80%) respondents reported having played the patient role in a simulated scenario during their work as a mentor, 13 (87%) stated that having had this experience changed their practice with respect to increased confidence, knowledge, and patient empathy. All respondents agreed to both questions that: (1) being a nurse mentor was a transformative experience, and (2) they would like more PRONTO training in the future. 3 (38%) reported plans for conducting simulations at work, while only 1 mentor (6%) reported not having used PRONTO concepts at their new employment. Challenges faced by nurse mentors to implementing PRONTO included: lack of space and resources, time management, and disengagement of other nurses.

Conclusion: Former AMANAT nurse mentors trained in PRONTO simulation and team training reported that the experience was transformative and requested more training. Several indicated they either are, or plan to integrate the concepts into their current work settings. While it is known that simulations can help improve clinical knowledge and skills, integrating learned concepts into new work environments and being a champion of simulation and team training brings a variety of challenges. Despite these challenges, former nurse mentors trained in PRONTO strategy reported the unintended impacts which included: a boost of confidence, enriched trust among providers, and a sense of happiness or appreciation associated with their work in health care. This study has been limited thus far by the low response rate. Researchers will continue to reach out to past mentors from continued trainings to encourage their participation in the survey, which well allow for more robust results.

References available upon request

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Poster #175

A MULTI-SITE SIMULATION STUDY COMPARING ATTITUDES AND COMFORT LEVEL OF UNDERGRADUATE NURSING STUDENTS INTERACTING WITH PEOPLE WITH DISABILITY
Presentation Category: Nursing Education

Bette Mariano, PhD, RN, ANE1 Trisha Leann Horrory, PhD, RN, CHSE, CN2
1VILLANOVA UNIVERSITY M. LOUISE FITZPATRICK COLLEGE OF NURSING, VILLANOVA, PENNSYLVANIA, UNITED STATES; 2SOUTH DAKOTA STATE UNIVERSITY, SIOUX FALLS, SOUTH DAKOTA, UNITED STATES

Introduction: One billion people worldwide (World Bank, 2017) and 33 million adults in the U.S. live with disability (CDC, 2017). This high prevalence and evidence that nursing programs and textbooks devote little attention to people with disability (PWD) training may not include pedagogical principles of learning in simulation, scenario design or strategies for successful facilitation and evaluation (2). Nurse educators have many roles in simulation-based learning; thus, they must have a solid foundation in simulation theories and pedagogy in order to design, deliver, facilitate and evaluate effective simulation experiences (3). Recently the Canadian Association of Schools of Nursing (CASN) endorsed the Canadian Simulation Education Competency Framework (CSECF) which includes an educator competency development in simulation-based pedagogy, practices and technologies. Research Question: What are nurse educators’ perceptions of the value of the

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Poster #176

EVALUATION OF AN ONLINE SIMULATION NURSE EDUCATOR CERTIFICATION PROGRAM
Presentation Category: Nursing Education

Marian Lucktar-Flada, RN, PhD,1 Jane Tyerman, RN, PhD,2 Cynthia Baker, RN, PhD,3 Nicole Harder, RN, PhD,4 Suzanne Hotzel Campbell, RN, PhD5
1 QUEEN’S UNIVERSITY, KINGSTON, CANADA; 2 TREN T UNIVERSITY, PETERBOROUGH, CANADA; 3 CANADIAN ASSOCIATION OF SCHOOLS OF NURSING, OTTAWA, CANADA; 4 UNIVERSITY OF MANITOBA, WINNIPEG, CANADA; 5 UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, CANADA

Introduction: Faculty development for simulation-based education frequently consists of training provided by the simulator manufacturer (1); however, technical simulation training may not include pedagogical principles of learning in simulation, scenario design or strategies for successful facilitation and evaluation. (2). Nurse educators have many roles in simulation-based learning; thus, they must have a solid foundation in simulation theories and pedagogy in order to design, deliver, facilitate and evaluate effective simulation experiences (3). Recently the Canadian Association of Schools of Nursing (CASN) endorsed the Canadian Simulation Education Competency Framework (CSECF) which includes an educator competency development in simulation-based pedagogy, practices and technologies. Research Question: What are nurse educators’ perceptions of the value of the

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