

## Nursing Education Research Conference 2018 (NERC18)

### Enhancing Knowledge and Retention of Infant Safe Sleep Practices With Simulation

**Jennifer Lemoine, DNP, APRN, NNP-BC**

Roger D. Rholdon Jr., DNP, APRN, CPNP-AC

Tricia A. Templet, DNP, APRN, CPNP-PC, FNP-C, CPEN

*College of Nursing and Allied Health Professions, University of Louisiana at Lafayette, Lafayette, LA, USA*

Sudden unexpected infant death (SUID) continues to occur in the United States despite recommendations made by key organizations' establishment of infant safe sleep practices based on best evidence. These recommendations have been well publicized through a long standing national "Back to Sleep" campaign and in contemporary literature. In addition, traditional educational tools, including videos, reading materials, webinars, etc., have been used to provide healthcare personnel, i.e. nursing staff, with these evidenced-based recommendations. Yet, many nurses providing care for infants in the inpatient setting often allow inappropriate caregiver behaviors to occur that do not align with a safe sleep environment. Education in the inpatient setting is a critical and key opportunity for nurses to address learning needs of the caregiver. This situation gives the nurse the opportunity to model appropriate behaviors, answer questions, and reinforce best practices. Understanding that nursing personnel are vital members of the healthcare team to provide key education, it is imperative that nurses acquire the necessary skillset (cognitive, behavioral, and psychomotor skills) to communicate effectively with caregivers and fellow staff members and to demonstrate infant safe sleep practices in the inpatient setting. It is important that nursing students and new nursing graduates are equipped with the knowledge and communication skills as well to interact with caregivers and other, often more experienced, members of the healthcare team. Educating nursing students about infant safe sleep practices during their formal education and training may offer an advantage as these students progress post licensure into the workplace. Simulation-based learning has emerged as an effective method in healthcare and nursing education. This modality of teaching allows for the learner to demonstrate cognitive knowledge and skills performance. The simulation environment gives the participant the opportunity to react in a real-time scenario using critical thinking skills and it allows for the development of new and effective competencies in the healthcare environment. Also of benefit, and a part of simulation, is the debriefing stage of simulation-based learning. This phase allows for the learner to expand upon ideas and further enrich and reinforce appropriate and effective behaviors and knowledge. The purpose of this pilot study was to evaluate the use of a simulation experience as an effective tool to teach nursing students about safe sleep practices and the importance of establishing a safe sleep environment in the inpatient setting.

---

**Title:**

Enhancing Knowledge and Retention of Infant Safe Sleep Practices With Simulation

**Keywords:**

Simulation, Sudden unexpected infant death and infant safe sleep

**References:**

American Academy of Pediatrics. (2016). SIDS and other sleep-related infant deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment, *Pediatrics* 138 (5), 1-12. doi:10.1542/peds.2016-2938

Carrier, C. (2009). Back to sleep: A culture change to improve practice. *Newborn & Infant Nursing Review*, 9, 163-168. doi:10.1053/j.nainr.2009.07.006

Centers for Disease Control and Prevention. (2016). Sudden unexpected infant death and sudden infant death syndrome. Retrieved from <http://www.cdc.gov/sids/aboutsuidandsids.htm>

Shaefer, S., Herman, S., Frank, S., Adkins, M., & Terhaar, M. (2010). Translating infant safe sleep evidence into nursing practice. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 39(6), 618-626. doi:10.1111/j.1552-6909.2010.01194.x

Mahoney, A., Hancock, L., Iorianni-Cimbak, A., & Curley, M. (2013). Using high-fidelity simulation to bridge clinical and classroom learning in undergraduate pediatric nursing. *Nurse Education Today*, 33(6), 648-654. doi: 10.1016/j.nedt.2012.01.005

McMullen, S., Fioravanti, I., Brown, K., & Carey, M. (2016). Safe sleep for hospitalized infants. *American Journal of Maternal Child Nursing*, 41(1), 43-50. doi: 10.1097/NMC.0000000000000205

Broussard, L., Myers, R., & Lemoine, J. (2009). Preparing pediatric nurses: The role of simulation-based learning. *Issues in Comprehensive Pediatric Nursing*, 32(1), 4-15. doi:10.1080/01460860802610178

Todd, M., Manz, J., Hawkins, K., Parson, M., & Hercinger, M. (2008). The development of a quantitative evaluation tool for simulation in nursing education. *International Journal of Nursing Education Scholarship*, 5(1), 1-17. doi:10.2202/1548-923X.1705

### **Abstract Summary:**

Sudden unexpected infant death continues to occur in the US despite recommendations made by organizations' establishment of infant safe sleep practices based on best evidence. The overall aim of this study was to determine if simulation may better impact nursing students' knowledge/awareness/retention of safe sleep.

### **Content Outline:**

#### I. Introduction

Sudden unexpected infant death (SUID), as the name implies, refers to the death of an infant (less than 1 year of age) that occurs suddenly and was not expected. According to the Center for Disease Control and Prevention (CDC, 2016) about 3,500 infants die each year with the cause of death classified as a SUID. The CDC (2016) further classifies SUID into three groups; sudden infant death syndrome (SIDS), "unknown cause" and accidental suffocation or strangulation in bed.

SIDS is the death of a child less than one year of age in which the cause of death cannot be explained after a thorough investigation. The term "unknown cause" applies when the unexplained death of a child, under the age of one year, is inconsistent or does not meet the criteria for a diagnosis of SIDS. The classification of strangulation or suffocation is used when the infant death is attributed to suffocation or strangulation either by bedding, soft objects or overlay; which is when a person rolls on top or against a

sleeping infant. Many of these deaths occur while the infant is in an unsafe sleeping environment. As healthcare providers, the inpatient nurse plays an important role in promoting safe sleep behaviors and educating caregivers about safe sleep practices.

The purpose of this pilot study was to evaluate the effects of simulation activities on the foundation of the hypothesis that education with simulation will enhance knowledge (cognitive), behavioral (affect), and psychomotor skills regarding infant safe sleep best practices acquired and retained by senior-level nursing students.

Nursing personnel are critical role models for parents/caregivers, with their attitudes and behaviors toward safe sleep practices in the hospital setting influencing practices adopted at home. Carrier (2009) purports parents/caregivers are more likely to repeat the behaviors demonstrated by healthcare providers during their hospital stay after discharge. However, despite knowledge of national safe sleep recommendations published by the AAP, many nurses do not align their behaviors in the hospital with best practices. A study conducted by McMullen, Fioravanti, Brown, and Carey (201), demonstrated that nurses who receive continuing education using traditional educational models did not improve knowledge of safe sleep guidelines as expected. Reaching student nurses during their formal nursing education and clinical training through an interactive education model, such as simulation, may better serve to influence and impact knowledge and awareness of safe sleep practices as they progress to licensed registered nurses.

Simulation-based learning is quickly advancing as an effective teaching methodology in the area of nursing education. As experts continue to search for the best instructional method(s) for the delivery of safe sleep best practices, simulation-based learning offers great potential. This teaching modality provides learners with the opportunity to address multiple domains of cognitive knowledge and skills performance. Additionally, the benefits of simulation for pediatric nursing education have been well documented (Mahoney, Hancock, Iorianni-Cimbak, & Curley, 2013; Broussard, Myers, & Lemoine, 2009). Additional research, however, is warranted related to the best method of educating healthcare providers about safe sleep practices to promote better patient outcomes.

## II. Methods

The research design was a mixed-method, prospective, interventional pilot study. Participants,  $n=51$ , included senior-level nursing students. Phase I of the study consisted of a 10-item written pre-test, which was given to establish baseline knowledge of infant safe sleep. Participants were then randomized into three groups; one group for each simulation-based scenario. Each student participated in one scenario and observed two scenarios that included various incidences of unsafe sleep. All students participated in debriefing sessions that followed each scenario. Performance was evaluated using a validated tool (Todd et al., 2008). In phase II, at one month, a 10-item written post-test was given. Participants were again randomized into one of three groups to take part in replicated simulation scenarios without debriefing. The same tool was used to evaluate phase II performance. Additionally, participants provided qualitative feedback after the completion of each phase of the study.

## III. Results

The intervention was found to be significant with a large effect size. A paired t-test was conducted to compare the mean differences between pre-test ( $M=61.17$ ,  $SD 17.5$ ) and post-test scores ( $M=77.05$ ,  $SD 14.7$ ),  $t(50)=-6.455$ ,  $p < .001$  2-tailed. A paired t-test also revealed statistically significant difference between phase I simulation evaluation scores ( $M= 32.98$ ,  $SD 13.77$ ) and phase II scores ( $M=69.94$ ,  $SD 14.61$ ,  $t(50) = -6.935$ ,  $p < .001$  2-tailed). Findings indicate that the use of simulation is an effective modality to acquire the necessary skill set (cognitive, behavioral, and psychomotor) to communicate effectively with caregivers and co-workers while demonstrating infant safe sleep practices in the inpatient setting. Rich qualitative data also emerged, themes include: fidelity of simulation experience, simulation as a

learning experience, and new information gleaned about SUIDs. These qualitative findings support clinical significance of the study, which is equally important.

#### IV. Conclusion

As experts continue to search for the best instructional method(s) for the delivery of safe sleep practices, simulation-based learning offers great potential. Reaching nursing students during their formal education and clinical training through this interactive model may better serve to influence & impact knowledge & awareness of safe sleep practices as they progress to licensed registered nurses. The findings of this study can also serve as the foundation to form community partnerships between academia and clinical practice. For example, using simulation as part of annual competency training for nurses and other healthcare providers in the hospital setting may enhance awareness and promote the retention of cognitive, psychomotor, and behavior skills related to infant safe sleep practices. As a result, our scenario-based simulation intervention has the potential to positively impact future outcomes of this vulnerable patient population.

First Primary Presenting Author

#### ***Primary Presenting Author***

Jennifer Lemoine, DNP, APRN, NNP-BC  
University of Louisiana at Lafayette  
College of Nursing and Allied Health Professions  
Assistant Professor  
Lafayette LA  
USA

**Professional Experience:** 2012 - present -- Assistant Professor, Sheila Ardoin Walsh/BORSF Professorship in Nursing, Graduate Faculty, University of Louisiana at Lafayette (UL Lafayette). 2016 - present -- Coordinator of Doctor of Nursing Practice Program, UL Lafayette. 2007 - 2015 Instructor, First Semester Senior coordinator BSN Program, Master Teacher Maternal-Child Nursing, UL Lafayette. 2006 - 2017 - Neonatal Nurse Practitioner, Women's & Children's Hospital, Lafayette, LA. Responsible for development and implementation of simulation education across the undergraduate and graduate nursing programs (2009 - present). Doctoral Dissertation, 2011: Effects of High-Fidelity vs. Low-Fidelity Simulation Training on the Enhancement of Cognitive, Psychomotor and Behavioral Skills in a Neonatal Resuscitation Course. Core member of the Louisiana Statewide Simulation Faculty Development Program; responsible for the development and presentation of numerous presentations & faculty simulation training workshops(2013 - 2015). Several awards and citations for research-related activities. Author or coauthor of 3 simulation-based learning manuscripts. Numerous presentations at the local, state, & national level related to simulation-based learning.

**Author Summary:** Dr. Lemoine's research endeavors include a 2010 pilot study entitled the "Effects of High-fidelity vs. Low-fidelity Simulation Training on the Enhancement of Cognitive, Psychomotor, and Behavioral Skills in a Neonatal Resuscitation Course." As a result of this and other research efforts, Jennifer received the Rising Star Award in Research for 2013-2014 & the Outstanding Research Award for the academic years 2014 - 2016. Dr. Lemoine's current research focuses on infant safe sleep practices.

Second Secondary Presenting Author

#### ***Corresponding Secondary Presenting Author***

Roger D. Rhodon, DNP, APRN, CPNP-AC Jr.  
University of Louisiana at Lafayette

College of Nursing and Allied Health Professions  
Assistant Professor  
Lafayette LA  
USA

**Professional Experience:** 2017- University of Louisiana at Lafayette College of Nursing and Allied Health Professions and Delta Eta Chapter, Sigma Theta Tau's Accent on Scholarship: The Use of Simulation to Improve Nursing Students' Knowledge and Retention of Infant Safe Sleep Practices Rholdon, R. (2016). Understanding the risks sitting and carrying devices pose to safe infant sleep. *Nursing for Women's Health*, 21(3), 225-230. Doi: 10.1016/j.nwh.2017.04.006 2016- Association of Women's Health, Obstetric, and Neonatal Nurses, Poster presentation: Outcomes of a Quality Improvement Project: Implementation of Inpatient Safe Sleep Practices Rholdon, R. (in press). Outcomes of a quality improvement project: An implementation of inpatient infant safe sleep practices. *Pediatric Nursing* 2012-2013- Doctoral project on safe sleep in the inpatient setting. 2015-present- Louisiana Department of Health, Region 4, Child death review member. 2015-present- Louisiana Department of Health, Region 4, Fetal infant mortality review member.

**Author Summary:** Dr. Rholdon's area of interest is infant safe sleep and sudden unexpected infant death. He completed his doctoral project on improving safe sleep in the inpatient setting. The results of this QI project have been presented at national conferences and accepted into publication in peer-reviewed, scholarly journals. The results of this study have been presented both locally and regionally and the results have been translated into practice and used for competency of inpatient staff nursing.

Third Author

Tricia A. Templet, DNP, APRN, CPNP-PC, FNP-C, CPEN  
University of Louisiana at Lafayette  
College of Nursing and Allied Health Professions  
Assistant Professor  
Lafayette LA  
USA

**Professional Experience:** Associates prepared registered nurse with 10 years of pediatric emergency experience prior to completing baccalaureate in nursing. Completed doctorate in nursing practice in 2015 with concentration on pediatric and family nurse practitioner. Currently working part time in a suburban pediatric emergency department as a pediatric nurse practitioner.

**Author Summary:** Presentations have included a continuing education series at Women's & Children's Hospital in Lafayette, LA, 7/2016, entitled "The world of pediatrics", at UL Nursing CE Program, 11/2016, "Opioid use and abuse in women of childbearing age", and at UL Accent on Scholarship, 4/2017, "The use of simulation to improve nursing students' knowledge and retention of infant safe sleep practices". She is also a member of the child death review panel for region 4 of Louisiana.