2017

Issues Related to Implementing High-Fidelity Simulation in a Nursing Program

Sherry Rene Ray
Walden University

Walden University

College of Education

This is to certify that the doctoral study by

Sherry Ray

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Marilyn Wells, Committee Chairperson, Education Faculty
Dr. Mary Batiuk, Committee Member, Education Faculty
Dr. Katherine Norman, University Reviewer, Education Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

Issues Related to Implementing High-Fidelity Simulation in a Nursing Program

by

Sherry Krueger-Ray

MSN, Grand Canyon University, 2010

BSN, University of Phoenix, 1998

ADN, Oakland Community College, 1989

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

December 2017

Abstract

Due to the shortage of clinical sites, nursing educators, deans, and directors are compelled to implement alternative clinical solutions such as high-fidelity simulation (HFS). The problem is that nursing educators are often not prepared to implement HFS as a teaching strategy. Faculty readiness is imperative for a successful simulation program and student outcomes. Therefore, the purpose of this study was to investigate the perceptions and practices of faculty, deans, and directors on the implementation of HFS across the nursing curriculum. Kolb's experiential learning theory provided the theoretical support for both the teaching and learning required by faculty for a successful simulation program. The key research question was to investigate how nursing educators perceived the implementation of HFS across the curriculum and how nursing deans and directors provided support for integrating HFS throughout the curriculum. The study population included 13 nursing faculty and 7 deans using simulation at prelicensure programs. Data collection included interviews, observations of simulation labs, and document analysis. Data were analyzed using open and priori coding. Five themes emerged relating to need for faculty development, need for time, need for resources, need for space, and need for support. These findings were consistent with the literature. Based on the findings, a professional development program in simulation pedagogy was developed. The faculty development program could lead to a positive social change by reducing barriers and increasing the use of simulation. Increasing the use of simulation allows nursing students to practice clinical reasoning skills and gain confidence and competence with the goal of improving patient outcomes.

Issues Related to Implementing High-Fidelity Simulation in a Nursing Program

by

Sherry Krueger-Ray

MSN, Grand Canyon University, 2010

BSN, University of Phoenix, 1998

ADN, Oakland Community College, 1989

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Higher Education and Adult Learning

Walden University

December 2017

Acknowledgments

I want to thank all of my family for their love and unwavering support during this journey. To my parents, Jerry and Margaret Krueger, thank you for your confidence in me and encouraging words to keep going. I hope that I have made you proud. To my children, Adam and Jenifer, thank you for understanding and being patient while I completed this project. Please forgive me for all of the times that I have had to cancel or shorten our visits together. To my parents, children, grandchildren, and siblings, I look forward to our family gatherings.

To my husband Jorge Abril, you were the voice of reason when I was weary and needed a push to stay in the game. Your sound advice, understanding, and encouragement made it possible for my goal to become a reality. Thank you for listening to me *brain storm* when I was stuck and looking for the right words or direction. I am looking forward to making up lost time with you.

To my colleagues, thank you to those that participated in my study and to those that provided words of inspiration throughout the years. So many of you were a sounding board and cheered me on when I needed help and reveled in my successes. Thank you.

Last but not least, the members of my committee, Dr. Marilyn Wells, Dr. Mary Ellen Batiuk, and Dr. Katherine Norman. Dr. Wells, thank you for the endless hours of reading my work and guiding me in the right direction. You reached out to me when I felt lost and provided advice and encouragement when I needed it most. I am eternally grateful for your expertise and the rigorous standards that you and the members of the committee expected from me. For these reasons and the amazing Walden student support resources, I am proud to be a Walden University alumnus.

Table of Contents

List of Tables

Section 1: The Problem

The Local Problem

The use of simulation is gaining momentum in schools of nursing to enhance theory and as a substitution for the clinical experience. Simulation has gained popularity in nursing schools worldwide due to the positive outcomes for students and patient safety (Benner, Sutphen, Leonard, & Day, 2010). The National Council of State Boards of Nursing's (NCSBN) recent study found that simulations can be used as a substitute for clinical; however, to achieve the same results, certain conditions must be in place such as faculty must be formally trained in all aspects of HFS (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). This section of the study, I will provide a detailed description of conditions leading to the problem at a local and a national level. I will also provide an explanation of the rationale for the problem, define specialized terms related to nursing education and simulation, and discuss the reasons why this problem is significant for nursing education. The subsection on research questions will be followed by a comprehensive review of the literature. Lastly, I will discuss implications for a faculty development project.

Definition of the Problem

There is concern among the nursing faculty at BSN School of Nursing (a pseudonym), a small, for-profit school of nursing located in a southwestern state. Due to the shortage of clinical sites, BSN nursing educators, deans, and directors felt compelled to implement alternative clinical solutions such as HFS. The problem was that nursing educators were not prepared to implement HFS as a teaching strategy. Substituting

simulation for clinical has raised many concerns among the faculty who have not had formal training in this time-intensive and highly technical teaching methodology. Senior leadership indicated that the faculty would need to be trained in all aspects of simulation; however, no assistance or training was provided by the administration.

The face-to-face clinical experience provides the student with hands-on application of theory to practice with real patient and opportunities for students to gain clinical competence. Clinical rotations are essential for nursing practice, and ideally, students should practice with actual patients (Ard & Valiga, 2012). According to McGinty (2013),

> There is a broad agreement among nurse educators that while didactic methods and simulated situations are essential, supervised experiences in clinical settings participating in direct patient care are imperative to prepare nurses to use theoretical knowledge and develop ethical comportment and professional values. (p.1)

Nurse educators are responsible for assessing and evaluating student performance in the clinical setting (Halstead, 2013) and limited face-to-face experiences create a challenge to accurately evaluating a student's readiness for the nursing workforce. Hence, HFS is becoming a necessity instead of an option. The ability of the educator to effectively use this teaching tactic could help bridge the theory-practice gap. To address this situation, nursing educators need to be able to create and implement simulation scenarios using International Nursing Association for Clinical Simulation and Learning (INACSL)

standards (Arizona State Board of Nursing, 2015) that provide the students with an opportunity to demonstrate critical thinking, clinical reasoning, and clinical judgment.

Evidence of the Problem at the Local Level

Several BSN instructors have voiced concerns that they do not know how to operate the simulators, run a scenario, or have the time to prepare for simulation. One faculty member stated that she does not have the time to create scenarios; therefore, she is planning a skills practice day of psychomotor skills. Another member also experienced a lack of time to create a scenario and verbalized that she would use the time to allow students to research in the library for an upcoming paper. The BSN lab manager expressed concerns regarding a lack of resources such as technical support, lab space to accommodate the masses, and lack of time to set-up a simulation scenario.

BSN is a new nursing program, and since its inception in 2011, the nursing student population has grown from nine to 300 in 2014. The BSN curriculum includes 810 clinical hours in addition to 122 credit hours of theory. Historically, the faculty-to-student ratio allowed at a clinical site was 1:8 or 1:10 depending on the facility (Werth, Fidazzo, & Schroeder, 2014). These ratios allowed all students to participate in weekly supervised clinicals at a local hospital, clinic, or long-term care facility. In 2014, the contracted facilities decreased the faculty-to-student ratio to 1:4 and 1:8. Additionally, the long-term care agencies did not renew their contracts due to restrictions imposed by the federal government (Werth et al., 2014). From 2012-2014, there has been an increase in the number of student groups that have requested clinical placements and a decrease in medical-surgical spaces available (Werth et al., 2014). The shortage of clinical sites in the

county where the nursing program is located has created an immediate need to substitute clinical hours with HFS at BSN. At this time, there is no solution for replacing clinical sites (Parsh, 2010; Richardson & Claman, 2014; Werth et al., 2014). The decrease in long-term care facilities impacts approximately 70 first semester nursing students at BSN that will need to complete 50% of the required clinical hours in the simulation lab.

With the decline in clinical sites and increasing student population, the students will have far fewer face-to-face hours with actual patients. According to the BSN clinical coordinator, there are not enough clinical sites to place all of the students. This shortage impacted approximately 90 students according to the BSN 2014 fall clinical schedule. Therefore, each week, these students reported to campus for alternative lab and simulation activities. At the time of this study, there were only two labs that can be used for simulation and together, the labs can comfortably accommodate 45-50 students. Also, the state board of nursing's advisory opinion for the faculty-to-student ratio in a simulation is 1:4-5.

Evidence of the Problem from the Professional Literature

Theory-practice gap. There has been growing interest in simulation as a means to meet the clinical requirements, prepare students for their role as registered nurses, and ultimately to improve patient outcomes. It is essential that graduate nurses possess critical thinking and clinical reasoning skills to deliver safe and competent care to their patients. Berkow, Virkstis, Stewart, and Conway (2009) surveyed over 5,700 nurse leaders and found that only 25% were totally satisfied with new graduate nurse performance. The theory-practice-gap is an ongoing worry for nurse educators and future employers as it

affects the progression of the nursing student to a licensed nurse. The theory-practice gap has been recognized for decades and simulation offers a means to integrate the type of experiential learning needed to prepare nurses (Benner et al., 2010).

Simulation can help the learner shift from knowledge to higher cognitive levels such as application and analysis (Zigmont, Kappus, & Sudikoff, 2011). The Institute of Medicine (IOM; 2000) also supports the use of simulation-based education as a means to prepare healthcare providers to meet the needs of the growing, complex patient population. Nurse educators can promote learner critical thinking, clinical judgment, and psychomotor learning opportunities by integrating clinical and classroom through simulation. The goal of a simulation is to provide experiential learning opportunities that allow the learner to apply theory to practice; however, faculty development to implement simulation is critical to an effective and sustainable simulation program (Jeffries, 2014). Also, the support of *n*ursing administration is necessary to make certain that educators are prepared to implement and integrate simulation throughout the nursing curriculum.

Strengths of simulation. The (NCSBN) recently conducted a multi-state study on the effectiveness of simulation to the actual clinical experience in prelicensure nursing programs (Hayden et al., 2014). Students (N = 666) were randomized into three groups. The control group attended traditional clinical experiences, the second group participated in simulation for 25% of their clinical, and the third group participated in simulation for 50% of their clinical (Hayden et al., 2014, p.7). This landmark study demonstrated that simulation could be used as an adequate substitution for clinical. Also, there were no significant difference in clinical competency (p = 0.688), comprehensive nursing

knowledge ($p = 0.478$), or National Licensing Examination pass rates ($p = 0.737$; Hayden, et al., 2014, p. S38). However, the NCSBN study found the following conditions must be in place:

- formal training in simulation pedagogy for nurse educators,
- sufficient number of faculty to support students,
- subject matter experts who facilitate the debriefing, and
- equipment and supplies to promote realism (Hayden et al., 2014).

Adhering to these conditions may be a challenge for many schools of nursing.

The participants of the NCSBN study completed three post-graduate surveys regarding their clinical performance over a 6-month period. The results of the surveys found that the experimental groups felt better prepared than the control group that did not have any simulation substituted for clinical. The results of this study provided evidence and guidance for state boards of nursing that are constructing mandates for nursing programs under their jurisdiction. This study also provided guidelines for deans and directors regarding the minimal requirements for substituting clinical with simulation.

According to the IOM (2000), simulation provides an opportunity to prevent and mitigate harm to real patients. The learners practice tasks and receive feedback from observers and faculty to assist in the improvement of skills (INACSL, 2016). Simulation can be used to substitute clinical or strengthen course content by replicating real-world scenarios. As an experiential learning method, simulation allows the student to practice providing patient care in a psychologically safe environment for the student where no harm can come to a real person. Simulation is emerging as a teaching strategy and

substitution for clinical which has led to the purchase of high-fidelity manikins, yet little attention has been given to faculty development (Jeffries, 2014). Nursing educators that are involved in implementing and evaluating simulation need to obtain the knowledge and training for creating objectives and scenarios that are appropriate for the level of the learner. Equally important is providing a safe learning environment. The educator is responsible for creating this safe atmosphere during prebriefing, the simulation, and when debriefing, which should nurture student learning (INACSL, 2016). Simulation can be a powerful learning opportunity if conducted I n a safe learning environment; however, if not well planned, disorganized, or not correctly executed, simulation can lead to the frustration of the learner.

The following criteria for the facilitator were developed by the International Nursing Association for Clinical Simulation and Learning (INACSL; 2016). Best practice guidelines for effective simulation require that facilitators will be able to:

- clearly communicate objectives and expected outcomes to the participants prior to the simulation experience;
- create a safe learning environment that supports and encourages active learning, reflection, and repetitive practice;
- promote and maintain fidelity;
- use facilitation methods appropriate to the participants' level of learning and experience;
- assess and evaluate the acquisition of knowledge, skills, attitudes, and behaviors;

- model professional integrity;
- foster student learning by providing appropriate support throughout the simulation activity, from preparation through reflection;
- establish and obtain evaluation data regarding the effectiveness of the facilitator and the simulation experience; and
- provide constructive feedback and debriefing with the participants' outcomes (Boese et al., 2013, p. S23).

Schools of nursing that follow the standards of best practice for simulation have the potential to enrich the students' acquisition of knowledge and skills, thus improving patient outcomes. Administrators of nursing programs can enhance the success of simulation programs and student learning outcomes by adopting the standards of best practice as outlined by INACSL.

Nursing schools across the United States are faced with the similar challenges, such as lack of clinical sites (McNeils, Foncier, McDonald, & Ironside, 2011; Neil & Wotton, 2011*)* and lack of formal simulation training for nursing educators (Adamson, 2010; Bray, Schwartz, Weeks, & Kardong-Edgren, 2009; Duvall, 2012; Jeffries, 2012). A viable alternative to face-to-face clinical is HFS (Hayden, 2010; Hayden et al., 2014; Jeffries, 2009; McGinty, 2013; Richardson & Claman, 2014), but a lack of prepared faculty and faculty development programs are cited as barriers to simulation use (Hayden, 2010; Jones, Fahrenwald, & Ficek, 2013) and worthy of inquiry. Several studies have cited that formal faculty training in the use of simulation as the main obstacle for using simulation (Adamson, 2010; Bray et al., 2009; Duvall,

2012; Jeffries, 2012). Other barriers for not using simulation include fear of technology, time constraints, lack of administrative and technical support, lack of equipment and lab space, and curriculum design (Adamson, 2010; Anderson, Bond, Holmes, & Cason, 2012; Duvall, 2012; Nehring, Wexler, Hughes, & Greenwell, 2013). Also, how to manage large groups of students while few are participating in the simulation is cited by others as another barrier (Fountain, 2011; Howard, Englert, Kameg, & Perozzi, 2011; Jansen, Johnson, Larson, Berry, & Hanson-Brenner, 2009). Consequently, it is important to understand and address the barriers that inhibit faculty adoption and implementation of simulation that can ultimately affect student learning outcomes and patient safety.

Rationale

According to the BSN clinical rotation schedule, every Monday, over 90 first and second-semester students do not have clinical placements and must attend on-campus clinical. BSN has two laboratories. One lab can accommodate 15 students, and the larger lab can accommodate 30 students. Providing quality education to meet the learning outcomes for 90 students within these two labs is an arduous task for faculty. Best practice indicates that simulation should have a ratio of one faculty to four to five students (Arizona State Board of Nursing [AZBN], 2015). At BSN, there are only two educators that have received training in simulation from attending conferences sponsored by the vendor. However, all nursing educators are responsible for managing all aspects of simulation for their courses from creating scenarios to running the simulator as there is no technical support or designated simulation coordinator. Simulation has the potential to

not only augment the shortage of clinical sites but to improve the quality of patient care and patient outcomes (Hayden et al., 2014; IOM, 2000). However, these results can only be achieved if educators understand the pedagogy of using simulation (Jeffries, 2014). The situation described establishes a gap in practice. Therefore, the purpose of this study was to investigate the perceptions and practices of faculty, deans, and directors on the implementation of HFS across the nursing curriculum.

Definition of Terms

Clinical experience: A component of nursing courses that provides an opportunity for the student to care for patients under the direction of a faculty member (NCSBN, 2005).

Clinical judgment: The knowledge, skills, and affective processes revealed through decision making, action, and demeanor (Tanner, 2006).

Clinical reasoning: The ability to apply critical thinking to a patient situation or scenario (Meakim et al., 2013).

Clinical scenario for simulation: A planned event for a simulation-based experience. A scenario should include:

- objectives,
- prebriefing (briefing) or student preparation,
- level of fidelity required,
- background of the patient's history and presentation of chief complaint,
- an algorithm of events,
- cues to support the student, and

- debriefing (Meakim et al., 2013).

Critical thinking: The thought processes employed for examining information (Facione & Facione, 2008).

Debriefing: An event that is led by the facilitator and occurs immediately after the simulation-based experience whereby students reflect on their decisions, actions, and what was learned (National League for Nursing-Simulation Innovation Resource Center [NLN-SIRC], 2014).

Facilitator: An educator who assists and guides the learners before, during, and after a simulation-based experience (Meakim et al., 2013).

Fidelity: The degree in which the simulation-based experience mimics reality. The level of fidelity may include the environment or features of the manikin that mimic human physiological responses, such as the chest can rise and fall with each breath (Meakim et al., 2013).

High-fidelity simulation: HFS refers to the use of an advanced manikin that can replicate the physiological responses of a human such as eyes that blink, pupils that react to light, ability to have seizures, or bleed (NCSBN, 2009).

Simulation: An effort to imitate a situation or scenario with the goal of allowing students to practice clinical judgment and clinical reasoning (NLN-SIRC, 2014).

Simulation learning environment: A physical space where simulation-based experiences occur. The simulation learning environment is established by the facilitator to encourage trust, confidentiality, and reflection without judgment or penalties (Meakim et al., 2013).

Significance of the Study

The significance of this study is that there is a considerable gap in practice on the use and implementation of HFS in nursing curricula. Simulation can be implemented throughout a nursing program to prepare students to think like a nurse. It is appropriate in lecture, in the lab to practice assessments and skills, and as a substitution for the clinical component. Simulation is a learning activity that allows the learner to experience the role of the registered nurse by applying academic content to a situation in a safe environment. The IOM (2000) recommends that institutions that provide healthcare education should develop and use simulation for training novice practitioners especially with high-risk procedures and new equipment. Simulation offers an opportunity for faculty to assess the learner's abilities to use critical judgment and clinical reasoning to ensure safe nursing practice.

However, most nursing educators enter academia with expertise in a particular clinical area but little to no experience in adult education. The required educational degree to teach nursing at the baccalaureate level is a master's degree and preferably in nursing (AZBN, 2017). These advanced degrees provide theory and improve the ability to teach (Caputi, 2010) but do not prepare faculty for teaching using HFS. Many schools of nursing have recognized the benefits of HFS and have spent large sums of money purchasing the equipment, yet little attention has been given to faculty development (Jeffries, 2014) or the schools do not have the budget for faculty development (Adamson, 2010). Jeffries (2014) posited that preparing faculty in the use of simulation ensures that

they acquire training and knowledge to create, implement, and evaluate simulation scenarios.

At BSN, nursing educators are challenged as they try to replace clinical hours in the simulation lab. The results of this study may be useful for the BSN School of Nursing in identifying what components are necessary to ensure a successful simulation program and meet program outcomes. Ultimately, healthcare consumers are dependent on safe practicing nurses, and schools of nursing are responsible for preparing students for professional, safe practice.

Research Questions

Many research studies have addressed the learners' experience during simulation, but there is a scarcity of research addressing the nursing educator's perspective of using HFS. The dramatic decrease of clinical sites in the state of Arizona has radically impacted the need for using simulation as a substitute for the clinical component. Additionally, the recent results of the NCSBN study found no significant differences in program outcomes when high-quality, simulation-based experiences were used for 50% of the traditional clinical hours (Hayden et al., 2014). The results of this study are of great importance for schools of nursing that are lacking clinical placement clinical sites as they will most likely increase the use of simulation. The AZBN has published an advisory opinion for the use of simulation which states that the INACSL Standards of Best Practice: Simulation for programs substituting simulation for traditional clinical experiences (AZBN, 2015). For schools of nursing to remain in good standing with AZBN, they will be expected to adhere to the proposed guidelines.

This study was guided by the following research questions that I derived from conversations with faculty, professional experiences, and the literature review:

1. How do nursing educators perceive the implementation of simulation throughout the curriculum?
2. How do deans and administrators provide support for integrating simulation throughout the curriculum?
3. How are schools of nursing implementing the guidelines and requirements for simulation as outlined by the AZBN?

Simulation has been identified as a practical substitution for the shortage of clinical placements, but educators have not been formally trained in simulation pedagogy. Preparing and executing simulation requires a great deal of time, which is in addition to their regular course load for the BSN faculty. Therefore, the purpose of this study was to investigate the perceptions nursing faculty and deans or directors on the implementation of HFS across the nursing curriculum.

Review of the Literature

The use of simulation as a substitute for clinical or to augment nursing education is becoming increasingly popular in nursing schools. Simulation requires training in the technological aspects of operating the simulator and best practices for implementing a patient scenario. This literature review provided me with a structure for the importance of studying the phenomena surrounding the implementation and use of simulation in nursing education. This review of the literature will begin with a discussion of the supporting theoretical framework of Kolb's experiential learning theory (ELT) as it relates to the

study approach, key research questions, instruments, and data analysis. There was a scarcity of current studies that spoke to the faculty-perceived barriers to simulation. The literature review will be organized into the following common themes that were reported from current research:

- Faculty perception and barriers to using simulation;
- Faculty training,
- Fear of technology;
- Simulation support staff;
- Administrative support;
- Time constraints; and
- Lab space, equipment, and scheduling issues.

I conducted the using Ovid Nursing Journals, (CINAHL), (ERIC), ProQuest Dissertations, Thoreau, and Google Scholar databases and search engines to obtain peer-reviewed research journals. Secondary sources, such as books from nursing simulation experts, and other professional and government resources were also used where appropriate. To locate relevant literature, I used the following keyword search terms: *clinical shortages, nursing and HFS, history of simulation, faculty barriers to simulation, faculty development, experiential learning and HFS, Kolb's experiential learning theory, NLN/Jeffries simulation framework, nursing education simulation framework,* and *theory-practice gap*. In this review of the literature, I synthesized and critiqued previous research studies related to the problem and key stakeholders involved in the implementation of simulation. Lastly, my findings from the literature review

demonstrated the need for this study by underscoring the lack of current studies related to the perceptions of nursing educators, and deans, and directors implementing simulation.

Kolb's Experiential Learning Theory (ELT)

Simulation is a technique that is learner-centered and embedded in adult-learning and ELTs. To provide effective simulation experiences, nurse educators and administrators must have a thorough knowledge of adult and ELTs (Zigmont et al., 2011). Historically, experiential learning for nursing students occurs during the clinical rotation. Experiential learning applies to individuals, groups, or organizational development using the elements of action, reflection, and transfer (Beard & Wilson, 2002). ELT is a holistic guide that aligns with the critical characteristics of a simulation scenario and provides a framework to identify the phenomena surrounding simulation (Poore, Cullen, & Schaar, 2014; Zigmont et al., 2011). Therefore, in this study I utilized Kolb's ELT as the theoretical framework.

Kolb and Kolb (2005) believed that knowledge is gained through a transformation of the experience. Kolb's ELT is based on the following six propositions:

- "Learning is a process,
- All learning is relearning,
- Learning requires the resolution of conflicts,
- Learning is a holistic process,
- Learning results from synergetic transactions between the person and the environment, and
- Learning is the process of creating knowledge" (pp. 43-44).

Included in Kolb's four-phase learning cycle is (a) involvement in a concrete experience; (b) reflective observation of the experience; (c) abstract conceptualization; and (d) active experimentation, which is a cyclic process for building knowledge (Kolb & Kolb, 2005).

The key elements of ELT match the components of HFS. During simulation, the clinical scenario is the concrete event which provides the basis for learning; reflective observation of the experience occurs during debriefing; abstract conceptualization involves reviewing and understanding the patient's response to nursing interventions; and active experimentation of newly learned concepts consists of applying those concepts to prospective patients (Poore et al., 2014). Reflection on action occurs during the debriefing, which is facilitated by the educator immediately after the simulation (Dreifuerst, 2015). During the guided debriefing, the students identify gaps in their knowledge and misconceptions are discussed (INACSL, 2016). The educator creates and supervises the implementation of simulation and provides an objective view of the learners' performances, allowing the learners assess their actions and decision-making.

Kolb's ELT supports the use of simulation in nursing education for both the learner as the participant and the educator that is learning how to implement simulation. As previously discussed, simulation is an effective strategy that allows students to apply concepts taught in the classroom to the care of a patient and through debriefing, reflect on that experience. When a faculty is new to using simulation, they are the student and learn by experiencing the simulation either as an active participant during the training or by watching others. Simulation training workshops often immerse a small group of faculty in the simulation experience (Jones et al., 2013; Roh, Kim, & Tangkawanich, 2016).

Faculty will take turns in playing the role of the student while another faculty will observe the simulation and facilitate debriefing once the scenario ends (Jones et al., 2013). Having the educators assume the role of the student allows the faculty to experience the simulation through the eyes of a student.

The literature supports that simulation is a teaching strategy, and nursing faculty need training in all aspects of simulation. Jeffries (2005) posited that successful simulations are dependent on the relationship between the educator and the student as well as expectations and roles. Also, support from nursing administration is necessary for a successful simulation program.

Kolb's ELT was well-suited for this study related to key research questions, which were related to perceptions and experiences of nurse educators and deans:

- How do nursing educators perceive the implementation of HFS throughout the curriculum?
- How do deans and administrators provide support for integrating HFS throughout the curriculum?

In this study, I wanted to identify facilitators, barriers, support, and recommended resources from the nurse educators. Additionally, I wanted to determine the experiences of deans and directors about what supports are necessary for integrating HFS in a nursing program. My data collection approach included interviewing the participants, which allowed for an in-depth understanding through a reflection on the experiences of the educators and deans.

Educators need a solid grasp of the components of simulation activities and knowledge of the technology. A successful simulation requires evidence-based principles supported by theory (Groom, Henderson, & Sittner, 2014). Teachers must be comfortable with technology, simulation design, setting up equipment, troubleshooting equipment, facilitating by providing cues, role-playing, evaluating, and debriefing (Jeffries, 2012; Jones, Reese, & Shelton, 2014). Kolb's ELT guided me as I developed a data gathering instrument to determine the barriers and facilitators of nurse educators and an understanding of the support needed by deans and directors when implementing simulation-based learning.

Faculty Perceptions and Barriers to Using Simulation

By reviewing the literature, I sought to identify the central issues related to the implementation of simulation from a faculty perspective. Although there is a need for simulation and its efficacy is well documented, many educators are reluctant to incorporate this pedagogy into their courses (Anderson et al., 2012). My desire to gain a deep understanding of the experiences of nursing educators and deans using simulation provided direction for this qualitative research study.

The literature was plentiful with the benefits of using simulation in the nursing curriculum. Researchers have speculated that simulation is underused by nursing educators (Davis, Kimble, & Gunby, 2013). There is a scarcity of literature regarding the perceived barriers to using simulation. I conducted a literature review of literature published from 2009 to the present regarding nursing faculty perceptions of the obstacles to using simulation, technology, and the effectiveness of simulation as pedagogy. To

date, I found a gap in the literature on formal faculty preparation in simulation-based learning (see Jeffries, 2009) as well as faculty perceptions on the implementation of simulation. Further research was required to investigate and provide insight on how nursing educators perceive simulation and its use. The National League for Nursing (2015) supports the use of simulation to prepare students for practice, but to support learning, an adequate number of faculty must be trained in simulation pedagogy and demonstrate expertise. Although the benefits of simulation are well documented, the frequency of its use is directly related to the complexity and provision of resources, such as faculty training, fear of technology, simulation support staff, administrative support, time constraints, designated laboratory space and equipment, and scheduling issues.

Faculty training. Historically, nursing education has been provided via lecture with the opportunities for applying theory given during a clinical rotation with real patients. Nickerson, Morrison, and Pollard (2011) wrote that teachers require training and well-developed skills to become facilitators of simulation in a safe, non-threatening environment. McNeill, Parker, Nadeau, Pelayo, and Cook (2012) also pointed out that few studies have examined specific approaches to preparing faculty for simulation. Kardong-Edgren, Willhaus, Bennett, and Hayden (2012) reported that the majority of the participants from their study identified that training was provided by the manikin representative (81%) followed by local training and a vendor workshop (43%; p. e120). This is a common theme found in other studies as well. Kardong-Edgren et al. also raised concerns that educators often receive training on how to operate the manikins from vendors that are not experts in simulation pedagogy. Sole, Guimond, and Amidei (2013)

surveyed 385 administrators for schools of nursing and chief nursing officers from hospitals, and 48% of the school administrators reported lack of faculty knowledge as a major challenge to implementing simulation (p. e269) and 93% indicated that educators received training from the vendor or a workshop (p. e267). Moreover, attending one workshop or vendor conference may not adequately prepare the individual for all of the complexities of simulation.

To date, preparing faculty for simulation varies among schools of nursing. The need for faculty training in simulation pedagogy is reported by faculty as a primary concern in several studies (Adamson, 2010; Arthur, Levett-Jones, & Kable, 2013; Bray et al., 2009; Hayden, 2010; Nguyen, Zierler, & Nguyen, 2011). Anderson et al. (2012) found that faculty acquired training by attending workshops (95%), working with other experienced individuals (88%), observing other faculty (90%), or reading about simulation (90%; p. 62). Only 26% of their 58 participants reported that their institution provided professional development for gaining skills in simulation (p. e62). Providing simulation training will increase the likelihood of acceptance and adoption by faculty.

Other current studies revealed that many educators have had no formal training and learned by trial and error (Anderson et al., 2012; Duvall, 2012; Kelly, 2014; Powers, 2014). Dowie and Phillips (2011) reported that 40% of their participants reported feeling confident when using simulation and only 35% believed that they were adequately prepared to use simulation (p. 37). Ninety-four percent of the participants in the Nguyen et al. (2011) study reported that they (N = 193) would increase the use of simulation if they had attended a training program (p = 0.03; p. 186). Also, 69% in Nguyen et al.'s

study perceived that training in simulation was needed (p. 185). The need for formal training is well documented. Training in all aspects of simulation is required to assist the learner in meeting goals and a successful and sustainable simulation program.

Fear of technology. An aspect of the NLN/Jeffries framework is fidelity, which refers to the degree in which the simulation-based experience mimics reality. The educator needs to understand the different levels of fidelity simulators available and which one to select based on the student learning outcomes (Jeffries, 2012). Sophisticated high-fidelity simulators are equipped with an internal computer that can be programmed to respond to the learner's actions. The simulator is controlled remotely by the faculty and is usually located in a control room behind a two-way mirror. The faculty may choose to purchase and download preprogrammed scenarios (Jeffries, 2012), write their scenarios (Dowie & Phillips, 2011; Jeffries, 2012; Sole et al., 2013), and program the manikin or operate the simulator ad lib. Faculty need to be able to quickly change the manikin settings such as heart rate, blood pressure, level of consciousness, or respiratory rate as well as verbal responses from the simulator based on interventions of the learner. Also, it may be necessary to troubleshoot connectivity issues and possible malfunctions of the simulator.

Comfort with the technological aspects of operating and troubleshooting the simulator has been cited as a common barrier to implementing simulation in several studies (Buchanan, Sainter, & Saunders, 2013; Davis et al., 2013; Dieckmann, Molin-Friis, Lippert, & Ostergaard, 2012; Howard et al., 2011; Nguyen et al., 2011). Fifty-seven percent of the participants in the Bray et al. and Kardong-Edgren (2009) study reported a

mild (25%), moderate (25%), to severe (7%) concerns related to technology phobia (p. e149). Harder, Ross, and Paul (2013) reported that participants felt uncomfortable and unqualified to use simulation as barriers to implementing simulation. Arthur et al. (2013) found that only 50% of the respondents had technology support (p. e223). The nursing educators were responsible for running simulation sessions. Duvall (2012) compared the perspectives of nursing instructors' (N = 576) motivational factors that influence using simulation and technology readiness to use simulation between educators who do and do not use simulation (p. 29). Duvall found that increased age resulted in a decreased technology readiness score; as compared to that of novice educators and that male educators had higher innovativeness scores than females. Technical malfunctions were also reported as a barrier to simulation in Duvall's study.

A lecture is still the predominant format of teaching, and hands-on experience with the simulators may be sporadic. The amount of technology support varies among academic institutions, from full-time informational technology (IT) support to no support as in the Sole et al., (2013) study in which available technical support was reported by only 13.5% of the respondents (p. e267). Organizations often misjudge the need for IT support and attempt to use existing personnel. However, sophisticated simulation labs include audiovisual equipment, computer workstations, and manikins that require specialized care and maintenance. Learning new technologies can be intimidating and having on-site technical support may alleviate the fear of using simulation. Moreover, having support staff to manage the technical aspects of the simulator would allow the educator to focus on the performance of the learner.

Simulation support staff. Simulation is complex and overwhelming without assistance. A lack of human resources to operate the manikins, supervise the students, and manage the lab was identified as a barrier to implementing simulation into the nursing curricula (Hayden, 2010; Jansen et al., 2009). Adequate staffing with emphasis on academic staff was a critical element for implementing simulation as reported by the participants (N =17) in the Arthur et al. (2013) Delphi study. Only 13.5% of the participants (N = 385) in the Sole et al. (2013) study reported that they had support staff whose duties included set-up, operate, repair or program the simulator (p. e267). Adamson (2010) discovered that a lack of support from administrators, other faculty, and information technology as a barrier to implementing simulation. Powers (2014) and Schlairet (2011) discussed a lack of faculty *buy-in* as a barrier to integrating simulation into curricula. Adequate support staff is critical for a successful simulation program such as a simulation coordinator and staff to operate the manikins.

Implementing simulation requires careful planning adequate staff to run the simulation. Daily duties may include scheduling, ordering of supplies, preparing the manikins, technology support, tracking data, creating simulation scenarios, and programming the simulator. Neil (2009) recommended that at least two people are needed for simulation, the operator and the person guiding the simulation. The most recent advisory opinion from the AZBN (2015) requires adequate personnel to prepare the patient scenarios for the simulation in schools of nursing using simulation as a substitute for clinical. In addition, support staff should have advanced knowledge of simulation as a teaching strategy and the curricular goals.

Administrative support. It is vital to have the support of major nursing stakeholders for a fruitful and sustainable simulation program. For a sustainable program, support is needed from the chief administrators to budget and secure finances for equipment, adequate lab space, a simulation coordinator, and an information technology support person. Guimond, Sole, and Salas (2011) recommended an assessment of the institution for resources to support simulation and any barriers to its success. Simulation labs are costly (Gates, Parr, & Hughen, 2012) and are most commonly staged as a hospital setting complete with beds, manikins, intravenous pumps, vital sign equipment, cardiac monitors, and emergency equipment to promote realism. In addition to budgeting, deans and directors need to consider how to implement simulation within the curriculum to ensure student learning outcomes are met. Fountain (2011) reported that a lack of administrative support and knowledge of desired results for the simulation program as a hindrance to simulation. Support from the administration or lack thereof is cited as a barrier to simulation in several studies.

The cost of resources was reported to be a problem by several studies. Adamson's (2010) study revealed that schools of nursing (N =11) reported spending between $51,000 and $300,000 on the cost of equipment; however, expenditures for ongoing maintenance and faculty development ranged from $2,000 to $5,000 (p. e77). Little is spent on support resources compared to the initial investment. In addition to significant expenditures for equipment, deans and directors need to consider the cost of training faculty and hiring dedicated lab personnel to manage the simulation lab and supplies. The nursing faculty (N = 24) in Adamson's study reported that adequate support from administrators in the

form of staff and equipment is imperative for fruitful simulation activities (p. e78). Likewise, cost of equipment and durable supplies (Bray et al., 2009; Hayden, 2010), limited available resources (Buchanan et al., 2013), and insufficient or broken equipment (Hayden, 2010) were cited as barriers to simulation. Additionally, more than half of the respondents in the Bray et al., (2009) study reported mild to extreme concerns regarding the need for administrative support to allow educators the time to prepare for teaching with the simulation. Without proper substructures, in place, it is unlikely that simulation will be successful.

It would not be unusual for deans or directors to be concerned about the return on investment due to the exorbitant costs to implement a simulation program. The results of Miller and Bull's (2013) study described a sense of pressure by the participants to use the manikins due to the significant amount of money invested in building the simulation center. Faculty felt that the simulation program was rushed without consultation of the faculty. Similarly, Fountain (2011) found that participants perceived a lack of administrative support and knowledge of desired outcomes for the simulation program was a hindrance to using simulation. To facilitate change, deans and directors need to communicate a vision, provide support, and create an environment supportive of change.

Adopting and incorporating a simulation program into nursing curricula requires strategic planning on behalf of the stakeholders such as administration, faculty, and laboratory personnel. Taplay, Jack, Baxter, Eva, and Martin (2014) found that nursing deans and directors with successful simulation programs shared power, decision-making, and responsibilities with simulation leaders. Key strategies included negotiating,

navigating, and networking of both simulation leaders and administration. Deans and directors were needed to negotiate with the upper-level administration for resources and space to develop the simulation labs. In a similar study, Abell and Keaster (2012) reported participants indicated a positive correlation between faculty adoption of simulation and their perception of established changes strategies being followed by the administration. Also, results indicated that administration had created an environment of support for implementing simulation as a teaching strategy.

Time constraints. The first step in simulation is creating the scenario or selecting one created by the vendor. Creating scenarios are time intensive and include learning objectives, props or equipment needed, supplies that the learner(s) may require during the simulation, and how the scenario will progress based on the learner's actions or lack thereof. Once the scenario has been created the information may be programmed into the computer software or the faculty can manually operate the manikin's responses during the simulation. Oermann (2015) wrote that simulation cannot be done successfully as a spur-of-the-moment decision. Full-scale simulation requires a great deal of time to create and to maintain (Waldner & Olson, 2007). Furthermore, simulations should be purposefully integrated into the curriculum and appropriate for the level of the learner and designed to meet course outcomes.

Faculty workload and time needed to incorporate simulation into the curriculum has often been cited as a high-ranking obstacle for using simulation. Lack of time to prepare for simulation (Adamson, 2010), not enough time to write scenarios (Hayden, 2010), and the time required for training (Howard et al., 2011) were cited as barriers to

using simulation. Thirty-seven percent of the participants in Powers' (2014) study reported set-up, preparation, debriefing, and evaluation as time-consuming as a perceived barrier to their use of simulation (p. 177). Increased faculty workload due to the time required to prepare and run scenarios is cited as an obstacle to implementing simulation (Bray et al., 2009; Buchanan et al., 2013; Dieckmann et al., 2012; Duvall, 2012; Fountain, 2011). Most educators have limited time to learn, create, and carry out simulation in addition to their teaching responsibilities. Consideration of faculty workload is needed for faculty development and preparing for simulation use.

Laboratory space, equipment, and scheduling issues. A designated simulation lab space is required to house the manikins, equipment and run simulation scenarios. A lack of space and equipment are reported as barriers to implementing simulation (Adamson, 2010; Fountain, 2011; Howard et al., 2011; Jansen et al., 2009; Powers, 2014). Also, Miller and Bull (2013) reported an inadequate number of simulation labs available for implementing simulation. Hayden (2010) reported that nearly half of the participants found it difficult to schedule additional lab time due to other groups using the lab. Fountain (2011) found that insufficient lab space that offered a supportive physical environment is a barrier to implementing simulation. Lastly, due to the shortage of designated lab space, some institutions find it is necessary to use the lab as a classroom. In addition, the simulation lab may be utilized as an open lab for students to practice their psychomotor skills such as starting intravenous insertions.

Scheduling challenges, particularly managing large groups of students through small labs, was a concern of participants from several studies (Howard et al., 2011;

Jansen et al., 2009; Miller & Bull, 2013; Powers, 2014). Jansen et al. (2009) and Powers (2014) also reported challenges in how to engage all students while their peers are actively involved in simulation. It should be noted that there is no current research as to how many students should participate in a scenario at a given time. Nonetheless, the AZBN (2015) is requiring a minimum of one facilitator per four to five students during simulation. Current practice is to have three to four students act as one nurse during the scenario while other students watch the scenario either in a room with live video feed or in the same room. Swanson et al. (2011) recommend that students should be provided with approximately 15 minutes to prepare for the simulation scenario and 30 minutes to provide care to the patient. After the simulation, 30-60 minutes should be devoted to debriefing. Other students may role-play family members or a nursing assistant. A typical simulation lasts one hour from start to debriefing. Therefore, accommodating a class of 20 students poses scheduling challenges where only one or two learners are role-playing as the nurse during a single scenario.

Considering the decline in clinical placements and the results of the recent NCSBN study, (Hayden et al., 2014) nursing programs may use simulation to meet the clinical objectives. Therefore, the AZBN has drafted an advisory opinion regarding requirements for using simulation at schools of nursing in the state of Arizona. The proposed minimum physical and policy requirements for using simulation by the AZBN (2015) include the following:

- a simulation suite with observation space for the operator;

- equipment of a fidelity identical or nearly identical to that commonly used in clinical settings;
- audio and video recording and playback capabilities that allow learners and faculty to review the performance of a scenario should be available;
- if students are observing the performance simultaneously, a separate room with remote video access to the simulation; and
- informed consent and confidentiality agreements for students (p. 3).

This advisory opinion will have an enormous impact on schools of nursing in Arizona by ensuring the adoption of best practices outlined by INACSL.

Implications

The review of the literature is foundational to the development of the project study and provides insight of the barriers associated with implementing simulation in nursing programs. Research supported possible causes for the obstacles are a lack of faculty development, fear of technology, lack of support staff, administrative support, time constraints, lack of space and equipment, and scheduling issues. For successful student outcomes, faculty must be formally trained in simulation, have adequate staff and administrative support, and appropriate lab space. Based on these findings, potential project deliverables include the creation of a faculty development program of best practice of simulation as outlined by INACSL and Kolb's ELT. A second possibility is an executive white paper with policy recommendations for deans and administrators on the necessities for a successful simulation program.

Conclusion

As the number of clinical sites and nursing faculty shrinks, it is expected the demand for simulation will increase. The recent results of the NCSBN study provided empirical evidence that simulation can be an effective substitute for the clinical shortages. This landmark study paved the way for state boards of nursing to create policies and guidelines for replacing clinical hours with simulation. The AZBN (2015) has issued an advisory opinion on the use of simulation for clinical substitution in prelicensure nursing programs.

Given the interest in simulation, there is a scarcity of literature addressing healthcare educator's perceived barriers to implementing simulation as well as the perspectives of deans and directors. Many of the participants from the studies of the literature review were already using simulation or had an interest in simulation but lacked formal training. Of those that received training, it was provided by the vendors of the manikins. The findings from the literature suggest that barriers to implementing simulation are a lack of space; lack of technical support, how to manage the masses of students, increased workload, and need for administrative support. Due to the gap in the literature, more research is required to examine the perceptions of nursing educators to identify barriers and catalysts to implementing a successful simulation program throughout the nursing curriculum. Section 2 will include a discussion of the research methodology of the qualitative case study with the primary focus on the experience of nursing faculty using simulation.

Section 2: The Methodology

In Section 1, I discussed the problem voiced by the BSN faculty and found many of the same concerns in the literature. Therefore, the purpose of this qualitative study was to understand the perceptions of faculty, deans, or directors on the implementation of HFS across the nursing curriculum. The guiding research questions were:

1. How do nursing instructors perceive the implementation of simulation across the curriculum?
2. How do deans and administrators provide support for integrating simulation throughout the curriculum?
3. How are schools of nursing undertaking the guidelines and requirements for simulation as outlined by the AZBN?

In this section, I will provide details of the research design and why it was suitable for addressing the problem and guiding research questions. Afterward, I will describe the context in which the study took place, the criteria for selecting the sample, and how confidentiality was maintained. Next, a review of the proposed instruments used for data collection will be as provided. Lastly, I will discuss the procedures used for data analysis and provide a description of the steps to strengthen validity followed by an evaluation of limitations to the study.

Research Design and Approach

In this study, I applied the qualitative method to explore and illustrate the complexities of the phenomenon of simulation as pedagogy. Qualitative methods rely heavily on the human perception and understanding of the phenomenon (Stake, 2010)

and provide rich, thick description (Merriam, 2009). Using multiple methods of data sources, qualitative research represents the views and perspectives of the participants in real-world conditions in the context of where they live or work and provides an understanding that may help clarify shared behaviors (Yin, 2011). This study was not suited for a quantitative method as this method does not align with the problem or research questions of the study. Quantitative research methods are employed to gain empirical data to explain problems or research questions (Creswell, 2012) and are experimental or non-experimental (Watson, 2015; Yilmaz, 2013). However, qualitative methods are used when exploring problems to gain a deep understanding of the experience (Palinkas et al., 2015; Yilmaz, 2013). When the researcher does not know which variables to study, a qualitative approach is useful (Creswell, 2014). In the literature review, I noted many real and perceived faculty barriers and facilitators for using simulation; therefore, a qualitative method was deemed the most appropriate for this study.

I used a descriptive case study design to explain the viewpoints and outlooks of the participants as they related to implementing simulation in this study. The case study method is a detailed investigation of a bounded system using multiple sources of data collection (Creswell, 2012; Merriam, 2009). The case study method is used to seek to explain a current phenomenon within a real-life context (Yin, 2014). In addition, behaviors cannot be manipulated in a case study, and my focus in this study was to understand the complexities surrounding the implementation of simulation. The descriptive case study approach provides a detailed account of the problem that includes

the environment, voices, and emotions (Cope, 2014; Palinkas et al., 2015). The case study method is designed to represent the participant's perceptions (Yilmaz, 2013). This case study included nursing faculty and deans from schools of nursing that are using simulation pedagogy.

Participants

Following qualitative tradition, I used purposeful sampling for this study. Participants were intentionally selected to gain rich information about the phenomenon (see Patton, 2003) and to enable the researcher to discover, understand, and gain insight (see Merriam, 2009; Patton, 2003). According to Creswell (2012), in qualitative research, it is common to have a small number of participants to study. Nursing instructors, deans, and directors were interviewed to acquire a comprehensive understanding of the complexities of implementing simulation. The target population included nursing faculty, deans, and directors of schools of nursing in the state of Arizona as the primary source of data collection.

Onwuegbuzie and Leech (2007) recommended identifying previous studies that used the same design and seeing at what point data saturation was reached to guide the researcher in determining a sample size. My review of supporting, qualitative studies revealed sample sizes that ranged from six to 25. Using this approach, I determined that a range of 10 to 12 participants as an appropriate goal for nursing faculty and 10 to 12 for nursing deans or directors. The size of the study sample was partly determined by the information gained from the interviews and the inclusion criteria. Sampling continued until saturation was reached.

After obtaining conditional Institutional Review Board (IRB) approval (Reference Number 02-17-16-0309819), I sought community partners by contacting deans and directors from 12 schools of nursing in Arizona as well as the Arizona Nursing Association, Chapter 6, nurse educators. IRB approval (Reference Number 2016-03-491) was obtained from the community college district, and letters of cooperation were obtained from schools of nursing that did not have an IRB. Once I received these documents, the deans and directors e-mailed the invitation to participate to their faculty (see Appendix E), which included the inclusion criteria.

The inclusion criteria for selecting the nursing educators consisted of members that had at least 6 months of teaching experience in prelicensure nursing programs and who had participated in simulation for student learning. The inclusion criterion for nursing deans and directors was that they were employed at a prelicensure, registered nursing degree program and presently using simulation in the nursing curriculum. Twelve participants responded to the original invitation. Due to the low response rate, I contacted five current or former co-workers that met the inclusion criteria. Recruitment and data collection occurred over a 4-month period at which time data saturation was achieved.

At the beginning of each interview, I informed each participant about the purpose of the study and provided assurance that the interview would be treated confidentially. Merriam (2009) suggested that having a viewpoint that the participant has been purposefully chosen and has an experience worth talking about will be helpful in making the participant comfortable. Therefore, the interview began with the purpose of the study and the importance of their experience and perceptions of how simulation is

implemented. Participants were also reminded that they could withdraw from the student at any time. During introductions, I tried to find common ground with regards to past clinical experience and as nurse educators. Throughout the data collection process, I maintained respect for and conveyed empathy and a sincere intent with the participants and staff at the various study sites.

In this study, I protected the human rights of all participants maintained participant confidentiality, and all information obtained was kept secure on a password-protected computer. The names and identifying data of the sources of tapes and transcripts that could identify participants were removed from the results of the study. Informed consent and protection from harm are two issues that dominate ethics in research (Bogdan & Biklen, 2007). Creswell (2012) cautioned that ethical issues could arise at various stages during the study, such as data collections, data analysis, and when communicating the findings. In the usual fashion, the IRB reviewed my proposal and checked that the study safeguards were in place to obtain informed consent and protect the participants. I obtained conditional IRB approval from Walden University (Reference Number 02-17-16-0309819).

Informed consent ensured that each participant understood the nature of the study, the procedures involved, the risks and benefits, and that they were volunteering to participate and could withdraw from the study at any time. Stake (2010) discussed that the greatest harm to participants might not be physical, but psychological, such as loss of confidentiality, respect, embarrassment, or reputation at work. I used the Walden template consent form and customized it for this study. I made initial contact with each

participant through e-mail. Those that expressed interest were e-mailed the informed consent form and instructed to acknowledge consent by replying "I consent" to the e-mail. Interviews were scheduled as soon as possible at a time and location convenient to the participant. To help maximize confidentiality, I assigned a unique identifier for each participant that was only known to me. Data collected were kept private, secured in a password-protected computer file, and not shared with anyone. All data will be deleted 5 years after completion of the study.

Previous relationships between a researcher and the participants of a study may affect the results of the study. As a result, it is important to acknowledge any known relationships with the study participants, past or current, and how these roles may affect the study (Cope, 2014). Five of the participants were former or current co-workers. However, in the past or at the time of the study, I had not held a supervisory position over any of them. There were no known conflicts of interest with the participants, and they were able to exercise free choice and were competent adults.

Data Collection

Using multiple sources of data is a characteristic of a good case study research and provides depth to the case (Creswell, 2014). Yin (2014) recommended collecting multiple sources of data for triangulation by developing convergent evidence to strengthen the case study. The data I collected included semi-structured interviews with faculty (Appendix B), interviews with deans (Appendix C), and observations of simulation labs and review of available physical evidence (Appendix D).

Interviews. Interviewing participants was the primary data collection tool I used in the study. Interviews can provide insightful perceptions, attitudes, and meanings of the phenomenon (Yin, 2014). However, some of the weaknesses of interviewing are biases due to the quality of the questions or response of the participant or inaccuracies of poor recall (Yin, 2014). Where possible and convenient for the participant, the semistructured interviews were conducted face-to-face. However, due to scheduling constraints, several participants preferred to be interviewed by phone. Each interview lasted approximately 60 minutes. All of the participants agreed to allow me to audiotape the interview using a voice recorder to ensure the accuracy of the interview. I created the interview questions for educators (Appendix B) and deans (Appendix C), which were directed by themes from previous studies, concepts of Kolb's ELT, and the AZBN (2015) advisory opinion.

I tracked all my communication with schools of nursing and the data collected using an electronic researcher's log with details of data collection method, date, time, name, contact information, and reflections. As soon as possible after each interview, the audio recordings were transcribed verbatim into a Microsoft Word document using Dragon voice recognition. I reviewed the copied data multiple times for accuracy before entering the transcripts into HyperRESEARCH, a qualitative data analysis software program. In HyperRESEARCH, I created a separate file for each collection method, interviews, and the physical evidence.

Physical evidence. Documents and observations were the third sources of data collection. Physical evidence included items, such as simulation lab schedules, simulation scenarios, and a physical examination of the lab space as it related to the AZBN

guidelines. The third research question pertained to best practice guidelines as outlined by AZBN and aligned with this method of data collection. I created a table (see Appendix D) to use during data collection that also aligned with AZBN guidelines and previously mentioned documents. I included requests to tour simulation labs and for private physical records in each letter of cooperation. Examination of simulation laboratories was conducted during separate tours or at the same time as some of the face-to-face interviews.

Data Analysis Results

Once all data was entered into HyperRESEARCH, codes were developed by relating the data to the problem and research questions. Saldãna (2013) described this process as the attention to language and deep reflection on emerging themes and the meaning of human experience. Chunks of data were assigned a specific code for analysis and refined as needed. Creswell (2014) recommended five to seven themes for a research study and publishing. Overall, the themes should represent the perspectives of the participants and supported with quotes and concrete evidence. Codes may also emerge from the data or based on past literature.

Within HyperRESEARCH, I created two alphabetized categories, one for barriers and one for facilitators of simulation. I used a combination of preset and open coding; initially, over 50 codes materialized from the data. I reviewed the data numerous times to refine the categories and relationships. Five key themes emerged that provided insight into the perceptions of faculty and deans. The results are displayed as a narrative discussing the details of the interconnected themes that emerged from the data.

The criterion for conducting and evaluating this case study was based on Creswell's (2009) descriptions of qualitative reliability and validity. Reliability indicates that the researcher's approach follows a set of protocols based on qualitative standards. Protocols for interviews and collection of physical evidence are included in the appendices. I kept a researcher's log to document an audit trail of interactions with participants and data collection methods. The researcher log helps to promote transparency, trustworthiness, and dependability. Additionally, the log is useful for the researcher to reflect and evaluate on what had occurred.

Qualitative validity is similar to Lincoln and Guba's (1985) definition of credibility that refers to the reader's confidence in the truth of the findings. Credibility was established by demonstrating persistent, repeated, and prolonged involvement in the field and member checking. Collecting data from multiple sources to substantiate themes and obtain thick, rich descriptions is another method to establish credibility and is also known as triangulation. For this case study, I collected data from interviews and observations of simulation laboratories at different points in time following protocols that I developed to ensure reliability and corroborating evidence.

Three of the participants were sent a data analysis of their transcripts via e-mail and asked to review for accuracy and member checking. Creswell (2012) recommended member checking to validate the truthfulness of the participant's transcripts, and interpretations are accurate. Member checking demonstrates that the researcher's biases have not influenced the conclusions (Lodico, Spaulding, & Voegtle, 2010). All three of the participants verified the accuracy of the interview transcripts and the themes that were

uncovered. There were no rival cases to discuss. Discussed in the final report, are biases that are known to me.

Limitations

A limitation of the study was that of purposeful sampling where conclusions might not be generalizable to the larger population. Another possible limitation was that of low response rates from deans as participants. Participants who were willing adopters of simulation might have biased the results. Administrators who had a smooth working simulation lab might bias the results as well. Lastly, other limitations are related to my inexperience conducting research interviews and analyzing qualitative data.

The guiding research questions and the literature review directed me as to which methodology and design would provide the greatest knowledge in answering the research questions. In this study, the research questions asked how the faculty and administration perceived the implementation of simulation across the curriculum and how were schools of nursing following the recommendations for simulation as outlined by the AZBN? Participant selection and criteria are critical to purposeful sampling. Therefore, participants were required to have a minimum six months teaching experience as well as the use of simulation. Consequently, a qualitative single-case study design was chosen to explain the phenomenon surrounded by the implementation of simulation.

Multiple sources of data collection methods (interviews with faculty and deans and physical evidence) all aligned with the research questions, collection tools, and were expected to produce deep, rich information. Data collection protocols, adapted from previous researchers, provided rigor, decreased bias, and increased transparency. An

electronic journal log provided the time, date, participant, data collection method, and extensive field notes. HyperRESEARCH, the electronic data analysis software, stored password protect data from the various collection methods.

Data Analysis Results

As previously discussed the goal was to interview 10 to 12 faculty and 10 to 12 deans. However, 13 nursing teachers and seven deans from various schools of nursing agreed to participate in this study. To ensure the accuracy of the interview, all participants agreed to an audio recording. Seven (35%) of the 20 interviews were conducted face-to-face. Six of those seven were conducted in the participants' private offices where the participant was employed. The remaining face-to-face interview occurred in a private room where the researcher worked per the participant's request. The remaining 13(65%) interviews were done via phone for the convenience of the participant.

Participant sample descriptions. Demographic data were collected during the interview or from public resources as needed and is displayed in Table 1. All participants were female. No males that responded to the invitation, which was not surprising as men are a minority in the nursing profession and comprise approximately 11% of the nursing faculty in Arizona (AZBN, 2014, p. 28). Of the participants nine were between the ages of 30 and 50, nine were between the ages of 51 and 65, and two were over 65. One participant had a bachelor's degree, 15 participants had master's degrees, and four held doctorates. Sixteen of the participants had been teaching between three and 10 years, three had been teaching between 11 and 25 years, and one had more than 25 years'

experience in teaching. Seven participants taught at associate degree programs and 13 taught at bachelor degree programs. Participants were employed in nursing programs that represented both profit and nonprofit colleges and universities in the state of Arizona. Due to the direct use of the simulation as a teaching strategy, only nursing faculty were asked about their number of years using simulation.

Table 1

Demographic Information of Participants

	Faculty	Deans
Age		
30-50	8	1
51-65	4	5
>65	1	1
Educational Level		
Bachelors	1	0
Masters	11	4
Doctorate	1	1
Years in Academia		
3-10	12	4
11-25	1	2
>25	0	1
Program Type		
Associate	4	3
Bachelor	9	4
Years Using Simulation		
2-5	7	--
7-10	6	--

Five of the 13 educators held titles as a simulation manager and were responsible for day-to-day operations of a simulation laboratory. One simulation manager held a bachelor's degree; one held a doctorate in nursing; another was a doctoral candidate, and the remaining two held master's degrees in nursing. Two of the simulation managers held certifications as healthcare simulation educator. One of the faculty participants worked full-time as a dedicated simulation faculty. The remaining seven had primary teaching roles in theory or clinical. These seven participated in simulation in a variety of roles from creating scenarios, running the manikin, being the voice of the manikin, facilitating, or debriefing students.

In summary, 45% are between the ages of 30 to 50 and another 45% are between the ages of 51 to 65. Most of the participants had master's degrees or higher with only one prepared at the baccalaureate level. Eighty percent of the participants have been teaching for 10 years or less. Three of the simulation managers have specialty certification in simulation. Most of the remaining faculty taught didactic or clinical and participated in a variety of roles in simulation. This section described the demographics of the participants for this study. The information was drawn from the interviews and public data as needed. Specific responses by the participants are labeled as Participant F for faculty and Participant D for dean or director followed by a number. The number coincides with the numerical order in which the interviews were obtained.

Responses to Interview Questions

The findings were built from the problem and research questions. As discussed in Section 1, the problem was that nursing educators were not prepared for implementing HFS as a teaching strategy. The following research questions guided this study:

1. How do nursing faculty perceive the implementation of HFS throughout the curriculum?
2. How do deans and directors provide support for integrating HFS throughout the curriculum?
3. How are schools of nursing implementing the guidelines and requirements for simulation as outlined by the AZBN?

Ongoing comprehensive and systematic reviews of the data were completed. Data were coded, clustered, and narrowed down into five themes. Data from the faculty and deans were reviewed separately and collectively to assess for both commonalities and opposing themes. No opposing themes were discovered. A set of priori codes derived from the literature and prior knowledge was developed and used as a guide for data collection and data analysis. The list of priori codes are as follows:

- Faculty training
- Barriers to implementing simulation
- Facilitators to implementing simulation
- Support
    - Administrative *buy-in*
    - Faculty *buy-in*

- Time
- Resources
- Lack of space
- Scheduling burdens

The results from the interviews will be followed by a discussion of the data collected from the observations of five simulation lab settings.

Nursing deans and directors' interviews. Seven deans and directors representing six different schools of nursing in Arizona were interviewed either by phone or in-person. Four of the deans work at for-profit baccalaureate degree programs. The other three deans work in associate degree programs one of which is for-profit and two from community colleges. Dean or director participants are from six schools of nursing in the state of Arizona. A review of their responses to each interview question follows.

Interview Question #1. *Describe the type of training that has prepared your faculty for simulation.* The data for this question were assigned a priori code of *faculty training.* There were a variety of responses including in-house training, vendor training, or attending conferences. Participants D6 and D7 expressed that vendor training on how to operate the manikin that was provided for the faculty as a means to begin training faculty in simulation. Participant D7 described her account as:

> Well, the types of training that I have done with faculty includes the individual training from the vendors, I think that has been a starting point because most schools consider the beginning of their simulation when they actually purchase the manikin.

When implementing simulation within her program, Participant D1 described the need for training as:

> We found that we needed to take a step backward and we needed to pause, and we needed to do some overall training on what our philosophy and pedagogy was going to be. We had faculty, that if everything was going well, they would try to 'stump the student' and throw something else in it. We pulled the INACSL standards, we shared them, we read them, and we talked about them and discussed them to kind of get that foundation.

Participant D2 described how their simulation person was trained to use simulation:

> She was hired last year as full-time faculty and has not had any formal training other than working with the local sim network. She worked with them just one on one observing them and then she educated herself as far as the INACSL standards and the state board standards. I have encouraged her to go to conferences, and I send her articles. We are wrestling with how to train someone additional to try to help her so that she has some time to get more education and to develop new simulations and look at some of the products that are out there. She needs time to get more education and she really has almost no time at all.

Two other deans point out the Simulation User Network (SUN) conferences hosted by Laerdal as a form of training. However, these conference sessions are often not accredited or eligible for continuing education credit and are often informational in nature. A one-time formal training for faculty was provided by the simulation manager as reported by Participant D3:

> She did a wonderful in-service with the faculty. It was a required in-service, and it was all morning, like four hours maybe more than four hours and she talked about the history of simulation, what it can do, purpose of, and a little bit about simulation in Arizona and what the board of nursing had come out with. She really gave a good synopsis of how simulation has evolved over the years and what the role of the faculty should be.

Three of the deans reported that their in-house training is mandatory for all educators who participate in simulation. Participant D4 indicated:

> In terms of training, we have been doing formalized training. We have created policies and procedures making sure that anyone that does simulation has gone throughout internal training and we are also looking at external training opportunities and supporting any of our lab faculty who want to be certified.

The responses for the types of simulation training for faculty varied among the participants. As each dean or director was interviewed, it became evident that not all had a clear understanding of what constituted training in simulation pedagogy; this may be in part because there is a deficiency of information in the literature on how to best support the acquisition of skills in simulation. As a result, the theme that emerged from this question is the *need for faculty development.* This theme strongly supports the need for the proposed project of a professional development program for faculty in simulation.

Interview Question #2. *What barriers do you perceive to increasing the use of simulation?* The data for this question were assigned a priori code of *barriers to implementing simulation*.

Four of the seven deans and directors stated that faculty *buy-in* as a barrier. Participant D7 verbalized:

> Older faculty may not be tech savvy, or they don't see the value in simulation, so they don't just jump in or see the importance of simulation. When I first started, we had half of the faculty understood that simulation could enhance education related to the lecture and we had a few that really were kind of reluctant to use it.

Participant D6 stated that "faculty really don't want to go with something new or sometimes do not have an open mind and that can be a real problem." In the words of Participant D2:

> Initially, our issue was that simulation was only seen as a necessary evil in some cases when we could not get clinical time. Now we have every faculty member fully on board and see the value of sim as a corollary to clinical and not just a replacement when we cannot get clinical days in acute care. It had been challenging to get faculty to *buy-in* to simulation, the sim lab was not being used by the entire faculty and I would tell them, you are going to be shocked when you see the students in simulation because in clinical you don't always get to see the same picture as what you get to see in simulation. And boy did they see for themselves once they got in there.

Participant D5 reported, "The most important thing for me is faculty development, teaching the faculty to be comfortable with their scenarios, to practice them, to run through them so that they don't get stuck. I think that is the biggest barrier." Participant D6 echoed that when she said:

> One-time training is not enough. I have seen some faculty slip back into their old ways of debriefing, so training needs to be ongoing. There is very little ongoing training. Faculty would deviate from the script. Let's give them this or try that. So many are unaware of what the simulation process should look like. They really need to be immersed in simulation theory.

The *need for support, need for space,* and the *need for resources* were three of the four themes that became evident as to barriers to simulation. However, six of the seven deans and directors described faculty *buy-in* and faculty development as barriers to implementing simulation. Lack of *buy-in* from faculty may be due to lack of understanding of simulation pedagogy. Consequently, the major theme that developed from this question is the *need for faculty development*, which corroborates the need for a professional development program.

Interview Question #3. *What facilitators do you perceive to increasing the use of simulation?* The data for this question were assigned a priori code of *facilitators to implementing simulation*.

Participant D1 voiced:

> You need a reasonable amount of technology and the experienced person to run the program and the staff to facilitate the simulations. It takes someone who has the experience and ability. That person needs to have time to do the development in a sound educational format for that simulation.

Participant D6 similarly stated:

> What makes simulation work is training and support from above and a person experienced in simulation. If you do not have administration *buy-in*, you can just forget it. It is not going to happen.

The main theme that became evident was the *need for support* from administration and the *need for faculty development.* Overall, there was a consensus among the deans and directors for administrative support to allocate monies for initial and ongoing expenses of maintaining the simulation lab and staffing the simulation lab. In addition, having an experienced or formally trained person overseeing the simulation lab was seen as necessary to a successful simulation program.

Nursing faculty interviews. Interviews with faculty were conducted in-person and via phone due to scheduling issues or based on the preference of the participant. Nine of the 13 educators work at for-profit baccalaureate nursing programs. Two educators work at associate degree nursing programs at community colleges. Two educators work at for-profit associate degree programs. Faculty participants are from seven schools of nursing in the state of Arizona.

Interview Question #1. *What is your role during simulation?* This data was not assigned a priori; open coding was used. The manner in which a simulation lab operates or is staffed varies among schools of nursing. Six of the 13 faculty participants were employed full-time in simulation labs. Five of the six full-time were managers of simulation labs at their respective schools of nursing. Three of those five did not have dedicated simulation support faculty assisting them with simulations or day-to-day operations.

Participant F2 identified her role as the lead faculty for the simulation lab. “I don’t have a lab tech anymore. I do it all from setting up, finding scenarios, and putting them together. I mean everything instructing, doing debriefing, prebriefing, and running the scenario, I’m doing it all.”

Participant F11 explained:

> I run the manikin, and I am in prebrief and debrief, but basically, the faculty member is there as well. It depends upon their experience if they are experienced I just sit in. If they are inexperienced, then I assist.

Participant F6 explained that she is the manager of the lab and has two other full-time staff working in the lab with her. Typically, one of them runs the entire simulation as the operator, facilitator, and evaluator of a simulation. While they are running a simulation, the other member of the team oversees a group of students working on a virtual simulation, case study, or other activity.

Participant F4, a manager of a sim lab, stated:

> I have both lab and simulation faculty. I am involved in every aspect of the lab; I can go in there and run top to bottom. If there is a need for me to fill in and if I don’t have faculty show up then I can go and fill in.

Participant F8 stated, “I have been the technology person behind the scenes, the voice of the patient, prebriefed and debriefed, I’ve done the whole scope of simulation.” In addition, she reported having written 40 simulations last year. Similarly, Participant F13 stated, “I was designing simulation and implementing them. I was a one-man show. I did everything.”

Participant F5 had a comparable experience to share:

> I've done everything as in I am everything, from running the manikin, evaluating the students, to designing simulations. I was the voice of the patient. Now, I get to be the evaluator instead of everything. You can't use it as an evaluation if you're distracted being all the roles; you just can't do it. It's impossible; you have to have help.

This question provided some insight as to the understanding of simulation pedagogy and best practice in simulation pedagogy from the participants. The roles and responsibilities during simulation varied among the educators. Four of the participants were running simulations without the support staff. Others worked in groups of two to three with other educators. Many of the participants were either currently or had previously worked alone during simulation. Seven of the thirteen faculty participants were employed as didactic teachers and had a full-time teaching load in addition to participating in a simulation lab. The themes that emerged from this question were the *need for support* and the *need for time*.

Interview Question #2. *How did you learn about simulation?* The data for this question were assigned a priori code of *faculty training*.

Participant F1 laughed when asked this question and stated, "I guess that depends on what you consider training. I spent some time with an expert and they basically went over the simulation equipment, and that's about the extent of training with them."

Participant F3 explained:

> I have not had any technical training. I will go in a little early, and they give me the scenario and will sit down and discuss what is expected and how to do this or how to do that. I haven't had any actual classes or anything like that it's more like learn as you go.

Participant F10 elaborated:

> I had a mini-orientation with the sim faculty with them teaching me how to function within the sim environment. It was on-the-fly probably about an hour to familiarize me with the equipment the room set up, supplies, to read the scenario, to become familiar with the objectives and the expectations. It was useful, but it was not adequate in my opinion.

Participant F 13 remarked, "I learned on-the-job by trial and error." Participant F11 stated, "I was never trained and I never really felt comfortable."

Only three of the participants had certification in simulation pedagogy. Participants that attended conferences or in-house training had that training after they had already begun participating in simulation. The emerging theme was the *need for faculty development*, which supports the need for the development of simulation training program.

Interview Question #3. *What type of training have you had to prepare you to use simulation?* The data for this question were assigned a priori code of *faculty training*. Participant 9 described her training as:

> I worked with a person from another school on how to do sim, work the machine, how to run it, so I was actually doing the mechanics of it. If we are going to be held

> accountable for doing sims per the board of nursing, then the staff need to be trained and they are not doing training.

Participant F 5 recalled her training as a combination of online courses through Elsevier, attending a SUN conference, vendor training on how to operate the manikin, and journal club with faculty. Participant F 13 remarked, “I do not have any training in simulation. I had a brief overview of how to turn the manikin on.” Participants F8 and F11 had previously worked for the same employer that required an all-day in-house workshop in simulation pedagogy. Participant F7 attended a three-day workshop on debriefing and she remarked, “It opened my eyes to the importance of higher learning and goals. The whole lab is Ph.D. prepared nurses, and all the simulation is driven by them; it was phenomenal.”

Participant 2, a manager of a simulation lab reflected on her previous experience at another nursing school.

> I watched another colleague do debriefing; it’s just amazing absolutely amazing. I really learned a lot from her. I have gone through Laerdal, I’ve done some of their webinars and Gaumard gave me a password to INACSL. I use INACSL to look up information. I have done a lot of webinars and their education videos that they have.

Participant 6 described how fortunate that she was to have been accepted into a year-long program offered by the National League for Nursing. She added, “From there, everything has just sort of snowballed since then.” Participant 12 jokingly described her training as “I hit the power button on the manikin.” She smiled and added, “I started going to

conferences and that kind of thing, then the [INACSL] standards came out. The training was trying to find out how to do things and every once in a while there was a formalized course." Her doctoral research topic was simulation as well.

This interview question encouraged the participants to reflect on their simulation training and learning. Only five of the 13 (38%) faculty participants had some formal education in simulation pedagogy by attending conferences, webinars, or workshops. Seven educators learned about simulation by working with others or as reported by some participants as on-the-job training. One participant described her simulation training as self-taught. It was evident the theme that emerged from this question was the *need for faculty development* and reinforces the need for a faculty development project.

Interview Question #4*. What conditions do you perceive as facilitators or what has made it easy for you to use simulation in the courses you teach?* The data for this question were assigned a priori code of *facilitators to implementing simulation.* Participant 6 reported:

> If the upper administration and not just the dean but the people that she has to answer to if you don't have that hire administration to support, it doesn't matter what you want you are not going to make headway. You also need to build relationships with faculty. They don't have to do sim but help them understand how what you are about to do is going to help take their content and put it into action and making sure that you align the experience correctly throughout the curriculum.

Participant F10 stated, “Training is essential for faculty, you cannot take a nurse, someone that may have or may not have been in the practice environment that they have never worked before.” Likewise, Participant F11 added, “First you need education, support from administration in invaluable without that nothing can happen, and then the support from your supervisor. Then at least one or two faculty members, who get it, and who understand what you’re doing and value simulation.”

Participant F7 remarked:

> You need financial resources so even if you do have the manikins you still need to have the ability to have the supplies that are current. So supplies, resources, and someone that can drive the simulation in general. Who is knowledgeable in simulation you can’t just send somebody to wing it down there.

Participant F5 described a similar scenario, “You need resources. Not necessarily equipment, but people, bodies, support and real-life orders and a plan.”

Three themes materialized from this question: the *need for support*, the *need for resources* and the *need for faculty development*. Support from the administration was a common thread among the participants. Not only for budgeting for the cost of equipment, but also for the cost of support staff. Three participants discussed the importance of planning related to scenario construction. Two discussed the need for faculty development. These perceptions also support the need for a formal training program.

Interview Question #5. *What are the barriers to integrating simulation into the nursing course you teach?* The data for this question were assigned a priori code of *barriers to implementing simulation.*

Participant F1 stated:

> Training for staff is a barrier. Unfortunately, we use a lot of adjuncts, and most of them are bachelor's prepared nurses, which is fine, but they tend to not know what kinds of things need to be in place to create a good simulation. So they just want to change the vital signs on the manikin, and they think that the students are just going to realize that there is a problem.

Participant F2 voiced concerns for space and scheduling, "For me it is space. We are a small program we just lost space. We used to have three labs; now we are down to two."

Participant F13 shared her experience:

> Time is a barrier. Trying to make sure you have enough time in the students' schedule. Training is also important. There should be a special designation or certificate or something that people earn for simulation because it is its own animal.

Participant F6, whose primary role is a manager of a simulation lab remarked:

> Well, the biggest one would be or has always been a lack of understanding of the pedagogy of simulation. Thinking that is not as valuable as clinical. Thinking that it is playtime and not realizing the intensity of what the students learned during that time and how compressed it can really be. So I think that hardest one that people don't understand what simulation entails or what its purpose is in the curriculum.

Participants that had well-working simulation labs with adequate staff support did not report as many barriers as the participants that were working with only one simulation

manager or limited support. Educators who primarily teach didactic perceived participating in simulation as a burden. The themes that became evident are a *need for space; need for time,* and the *need for faculty development,* which supports the need for formal training in simulation pedagogy.

Interview Question #6. *What resources would you recommend for increasing the integration of simulation into the course you teach?* The data for this question were assigned a priori code of *resources.*

Participant F7 stated:

> You need financial resources to have the manikins and supplies that are current. So supplies, resources, and someone that can drive the simulation in general. Someone who is knowledgeable in simulation you can't send somebody to wing it down there.

Participant F1 exclaimed, "Just hire enough staff so that you don't have to rely on adjuncts all the time. You know? Staff the simulation labs with however many educators you need all the time."

Participant F9 exclaimed:

> The students are not getting what they need! Half the time the suction equipment doesn't work, the bed doesn't work; they don't have the proper IV stuff. I mean geez. You look foolish when you don't have what you need.

Participant F6 explained:

> Well, the INACSL standards are the first thing to be up there. Of course being here in Arizona the advisory opinion. It's really important to determine what type

> of philosophy that you have for simulation as a department. With the theory that going to underpin your sim program and you theory for your debriefing approach that has to be agreed upon and those should be based on the evidence that's out there and what the best practices are.

Having a dedicated simulation team or simulation person was a common subject discussed by the faculty. The need for updated equipment and resources to create realism was cited by many. One participant discussed the importance of adopting best practice standards and philosophy to support the simulation program. The themes that emerged are the *need for support,* the *need for resources,* and the *need for faculty development.*

Interview Question #7. *How would you describe the technical support that is available during simulation?* The data for this question were assigned a priori code of *support.*

Participant F1 chuckled:

> We have tech support? *Laughter* I don't know. I know I have a number that I can call if the manikins are not working. I know the facilitator knows how to restart things, the main lab person, so if they are available, I go grab them and that's about the extent of it. *Laughter*

Sounding frustrated Participant F9 stated, "I have no idea. I know that half the times we go in things are not working; so I said to her before you run a sim you should really be running things to make sure things work."

Participant F7 gasped:

> I think that IT is the crux of all simulations. You need to have IT support. They [manikins] require updates if you don't know your computers you are missing. The manikins don't tell us when they need updates so I think technology support is huge.

Participant F13 remarked, "I think there is a one 800 number to call if SimMan is not working." Participant 8 stated, "We do not have any it is me; whatever I know how to do." Participant F11 stated:

> Either I work through it or I can call our IT person who really cannot help me with anything that's related to the Laerdal manikin, like the software or the cameras. So if I can't work through it then I call Laerdal.

Participant F3 explained:

> Even if technical support wasn't available, it is important for people that are running sims have taken classes because you have to know what you are doing in situations. We have had tons of experiences where they [manikins] quit working, so it's important to have people to troubleshoot.

All programs had IT support for day-to-day operations of the facility. However, none of the nursing programs had IT support for troubleshooting equipment failure for the manikins, or the audio and video equipment. The emerging theme from this question was the *need for support.*

Interview Question #8. *How would you describe the support staff available when you use simulation?* The data for this question were assigned a priori code of *support.*

Participant F13 said, “Ours is minimal at best because there are very few people on campus that know how to use it. You may know how to turn it on, but it doesn’t mean you know how to troubleshoot.” Participant F9 reported, “We are shuffling work around using the same amount of people all the time.” Participant F10 stated, “We have a full dedicated staff.” Participant F7 stated, “We are so good about keeping our numbers low. We have M. running the sims with a faculty. We have to have two people in simulation no matter what.” Participant F2 echoed, “We have a lot of faculty.”

There were a variety of staffing matrices described by the participants. Nine of the 13 educators verbalized the need for a dedicated simulation team. While some reported having a fully staffed simulation lab, others are working alone and may or may not have help from the course faculty. The theme identified was the *need for support*.

Interview Question #9. *How have you implemented the INACSL Standards of Best Practice that have been adopted by the AZBN?* The data for this question were assigned a priori code of *faculty training.*

Participant F10 stated, “I was privy to that via an email, but I did not read it in depth.” Participant F3 identified that she is not aware of the INACSL standards or the advisory opinion from the state board of nursing. Participant F1 said:

> Honestly, I am not sure. Well, we just got a new lab director, and I’m sure she has put it all together. I’m sure she’s probably looking at it. It does take staff and money to implement the best practice.

Participant F5 commented, “Well we are literally at every board meeting and every education meeting.”

Participant F11 elaborated:

> When the state boards came we did not have the debrief room, so the debrief room was added to the back in the lab before I arrived. We had like 60 days to comply with the board, so that was put in so we have a separate area with a door and a projector computer so that we could debrief. Students sign a confidentiality agreement at the beginning of each semester. The results of their evals are recorded we have mean score for each question and that's reported at the end of each semester.

In summary, 11of the participants were aware of the AZBN advisory opinion and the standards of best practice from INACSL. Four of the participants were not familiar with either document. The theme identified was *need for faculty development*. Any educator participating in simulations are bound to the requirements of the AZBN advisory opinion. Not being aware of the INACSL standards or the AZBN advisory opinion validates the need for the proposed project of faculty development in simulation.

Interview Question #10. *How would you describe the simulation lab space?* The data for this question were assigned a priori code of *lack of space.*

Participant F11 commented, "To my way of thinking, it is incredibly uncomfortable because it's so tiny and inadequate." Participant F6 described that she did not have enough space and:

> That quickly determines the size of my groups. Am I running them concurrently or not? I have two strong sim rooms; one of them is stronger than the other.

> Upgrades are coming to the second room over the course of a year. So in about a year, I will have four functioning simulation rooms right now I have two.

Six of the thirteen educators reported a lack of space. Several share the simulation lab with the nursing skills lab, which creates scheduling burdens as well. The theme that emerged from this question was a *need for space*.

Interview Question #11. *How would you describe the debriefing process that you use after a simulation?* The data for this question were assigned a priori code of *faculty training.*

Participant F7 remarked, "We are grounded in PEARLS and I think that is going to be set in stone. We need to make a decision as faculty if that is what we want to adopt."

Participant F1 described the following:

> I do not know about a specific debriefing model. I teach a leadership course, and so we do a lot of discussion on good quality feedback. Constructive criticism and that kind of thing, so I have my own way of doing things, but I don't think we use a specific debriefing model.

Participant F9 stated:

> We are basically asking what their take away was, what they feel went well, did they work as a team and the I tell them what I saw after they have discussed their own observation and feelings about it. I make sure that I ask them about if they prioritized care.

Using an evidence-based debriefing model is recommended in the AZBN advisory opinion. Seven of the 13 participants were unsure of their debriefing model or

that models existed. Therefore, the theme that emerged from this question was the *need for faculty development* and supports the need for the faculty development project.

Themes from Interviews

Five main themes emerged from the interviews. Themes identified were the *need for faculty development, need for time, need for resources, need for space, and need for support.* The themes are addressed in their order of importance derived from the study.

Need for Faculty Development

The participants in a variety of ways conveyed the need for faculty development. Eleven (55%) of the 20 participants cited faculty development as the biggest barrier to implementing simulation. Three of the deans stressed the importance of training and reported that they have mandatory in-house training on simulation prior to faculty participating in simulation. Five of the participants stated that they received their training from the vendor on how to operate the manikin. Six of the 13 faculty indicated that they learned on-the-job with no formal training. In addition, four of the 13 educators were not aware of the standards of best practice from INACSL or the AZBN advisory opinion on simulation.

Need for Time

Eleven or 55% of the participants reported time as a barrier to implementing simulation. Included in this theme was the time to write scenarios, finding time to train faculty and time to grow the simulation program. Two participants voiced that it takes time to prepare the manikin and setting-up the scenario to be realistic. Participants that

were teaching didactic reported difficulties in managing their course responsibilities along with assisting in simulation.

Need for Resources

The start-up costs and maintaining a simulation program was expressed by 12 (60%) of the participants. Funds are required for the purchase of the manikins, associated warranties, and related medical equipment and supplies to create realism. In addition, staffing the simulation lab with a dedicated team was discussed by 13 (65%) of the participants. Three of the simulation programs were staffed with a dedicated simulation team; however, six of the programs represented in this study had only a manager designated to the simulation lab, and two of those managers were responsible for both running simulation and the nursing skills lab.

Need for Space

Eleven (55%) of the participants reported that a lack of space for simulation could be a barrier to simulation. One participant stated that her program had a mixed-use lab for simulation and nursing skills lab which, created challenges to scheduling students. Seven of the participants worked where the simulation lab was separate from the nursing skills lab. The size of the simulation labs can limit the number of students that can participate in simulation. Four of the simulation labs that were observed had a designated simulation lab and a designated nursing skills lab. Two of the programs had shared space but had small numbers of students enrolled and did not report scheduling burdens. One program did not have a separate space for the operator and faculty facilitating the simulation scenarios.

Need for Support

The need for support included support from administration and faculty. Ten (50%) of the participants discussed the importance of having support from administration. Support from administration was needed for budgeting monies for purchasing equipment and staffing the simulation program. The deans that were interviewed were proponents of simulation and discussed the challenges and support received from the top leadership team. Nine (45%) of the 20 participants verbalized the need for faculty *buy-in* with simulation pedagogy and to be part of it. Although some of the faculty believed in simulation, they did not want to participate in simulation. These teachers preferred that a designated simulation team run the simulations.

Observations of Simulation Labs

Simulation laboratories are designed to mimic the clinical site or patient care environment such as a hospital room. Appropriate equipment and props such as glasses, and wigs, or intravenous pumps should be included in each simulation to improve the perception of realism. Faculty and the simulation operator should not be visibly present during the simulation to decrease distractions and enhance realism. It is common and best practice for the facilitator and the simulation operator to be in a control room with a two-way mirror to view the students.

Six simulation labs were visited at a time when no students were present. Examination of the labs was done in part to determine how nursing programs were supporting the student learning environment and meeting best practice guidelines set

forth by the AZBN advisory opinion. The AZBN advisory opinion outlines the minimum requirements for personnel and physical resources needed for simulation, which include:

- Adequate personnel to set up and break down the simulation,
- Simulation suite with observation or operator space,
- Equipment of a fidelity identical or nearly identical to that commonly used in clinical settings,
- Audio and video recording and playback capabilities, and
- If there are observers, a separate room with video access to the simulation that allows learners and faculty to review performance (AZBN, 2015, pp. 2-3).

Programs that do not meet the minimum requirements may be at-risk of violating rules and regulations set forth by the board of nursing.

Program 1 simulation lab. Program 1 has a traditional 4-year BSN track and an accelerated 12-month BSN track. This program has a four separate simulation suites each equipped with a high-fidelity simulator, one of which is a birthing simulator. The simulation suites were not shared with the nursing skills lab. Two of the simulation suites shared a debriefing room where the faculty and student observers would watch the simulation via live stream. The other two simulation suites shared the operator suite and faculty could observe the simulations via live stream and through a two-way mirror. Supporting resources and equipment were available to create realism. Audio and video recording was available and its use encouraged during debriefing.

Program 1 had a simulation director and dedicated team. Although the physical spaces were not shared, the team participated in both simulations and the nursing skills

lab. All facilitators of simulation are required to attend a 1-day workshop on simulation. Students are scheduled to take part in simulation with their clinical group and the clinical professor facilitating the simulation scenario. Students would participate in an evolving scenario in pairs of two until all had the opportunity to participate. Neither the simulation scenarios nor the schedules were available for review. The theme that emerged was the *need for time* to build a simulation program and the *need for support* from administration to provide financial resources for space, equipment and support staff.

Program 2 simulation lab. Program 2 offers a 3-year BSN program. This program has five simulation suites in a space that resembles a hospital. Four of the suites had a high-fidelity simulator, one of which was a birthing simulator. The fifth suite had a mid-fidelity simulator. Each simulation suite has an attached operator suite with a two-way mirror. All simulations are recorded and available for playback. There is a debriefing room for each suite. There was a separate nurse's station, crash cart, and two electronic medication carts. There was an IV pump available for each suite. There is an electronic health record for each of the published scenarios.

Program 2 had a dedicated simulation director, four full-time, and one part-time personnel. There are two other classrooms in the vicinity for the nursing skills lab and health assessment lab. The simulation team is dedicated to running simulation. They run between 30 and 50 scenarios each week. Full-time and adjunct faculty prebrief, role play the doctor via phone and debrief students after a simulation. The size of the student groups varies according to faculty preference from four to ten. Only four students may participate at a time. Any remaining students observe their peers performance from the

debrief room via live stream. The theme that emerged was *need for time* to build a simulation program and the *need for support* from administration to provide financial resources for space, equipment and support staff.

Program 3 simulation lab. Program 3 offers a traditional 4-year BSN program. Program 3 has five simulation suites and one observation suite shared by the sim operator. There is audio and video recording for playback, however; it is not being used due to time constraints. There is an adequate mix of high-and midfidelity manikins. The suites resemble hospital rooms with overhead oxygen and suction equipment. One room is set-up as an apartment for Community Health clinical. There is a nurse's station with adequate resources to resemble the hospital environment. A crash cart, medication cart, and supply cart were readily available. Simulation scenarios are purchased from a publisher and not available to me. Program 3 has a dedicated simulation director and four full-time staff for their simulation lab. The theme that emerged was *need for time* to build a simulation program and the *need for support* from administration to provide financial resources for space, equipment and support staff.

Program 4 simulation lab. Program 4 offers a 4-year BSN program. The simulation area is set-up as a ward with four patient beds in one large room. The area felt constricted. There are two high-fidelity manikins one of which is a birthing simulator. There are curtains between the beds and the common overhead patient needs such as suction and oxygen. Basic equipment appeared to be present. There was no crash cart or electronic medication station. There is one observation suite placed awkwardly in the middle of the room with a two-way mirror. The mirror is placed at such a level that the

operator when sitting in a chair cannot see out of the window and must rely on the cameras to evaluate student performance. A dedicated simulation director assists with creating scenarios and preparing the manikins for the future simulations. One academic faculty, the content expert, attends the simulation as the facilitator and voice of the doctor and reviews all simulation the week before. There is a separate debriefing /observation room with audio and video playback capabilities. There is a ratio of one faculty to four students and the director for each simulation. The themes that emerged from this observation were the *need for resources*, *need for space*, and a *need for sup*port from administration.

Program 5 simulation lab. Program 5 is a 2-year associate degree-nursing program. They have two large rooms that are used for both simulation and nursing skills lab with a door separating the rooms. There is a dedicated simulation lab director. She is responsible for both teaching and evaluating nursing skills and the implementation of simulation. There is a mix of mid- and low-fidelity manikins and one high-fidelity manikin. They do not have a separate room for the simulation operator or facilitator of the simulation. Therefore, they are using a long extension cord and positioning themselves on the other side of the door away from the learners. Students are observed via live streaming of a camera and I-pad. Audio and video recording playback is not available. They do not have a crash cart or electronic medication cart. The simulation director creates scenarios and edits published scenarios as needed to meet course outcomes. Students participate in simulation in small groups with two to three educators

facilitating and evaluating their performance. The themes that emerged from observing this simulation lab are the *need for resources*, *need for space* and *need for support*.

Program 6 simulation lab. Program 6 is a 2-year associated degree-nursing program. The simulation lab had five rooms with an adequate mix of high- and midfidelity manikins. One of the rooms was set-up as a maternal-child simulation room and another room resembled a pediatric hospital room. There was an operator suite and audio and video recording capabilities. An abundance of equipment was available, but a need for space was noted as hallways were filled with equipment. The simulation manager created scenarios and was the only full-time staff in the simulation lab. Adjunct faculty evaluated student performance using the video and audio playback feature. The theme that emerged was the *need for space* and a *need for support* from administration for support staff.

Themes from Observations of Simulation Labs

Six simulation labs were observed for this study. The themes identified through observation of simulation labs corroborated the results found through interviewing the participants. Four main themes evolved: the *need for time*, *need for resources*, *need for space*, and the *need for support*.

Need for Time

The *need for time* was a common theme for all simulation labs. Creating the space, purchasing capital equipment and resources, creating scenarios, and putting together a simulation team can take years to accomplish. Program 4 opened 2 years

ago and had small cohorts. Programs 5 opened 5 years ago and also had small cohorts. The need for time and budgeting of monies to build a high-tech simulation lab can take years to occur.

Need for Resources

Simulations are costly and financial resources are required to create the lab and for ongoing maintenance and supplies. Program 5 needed to create a separate operator suite and purchase and install high-level audio-video recording and playback, which is costly. Program 4's lab was retrofitted and had a poorly designed operator suite. In addition, they did not have an electronic medication dispensing system to mimic what is available in the clinical setting. This theme also validates what was discovered from the interviews with participants from these programs.

Need for Space

Three of the simulation labs did not have adequate space. One program had a confined lab with a dysfunctional operator suite. Program 5 did not have an operator suite or sophisticated audio-playback capability. Although Program 6 was high-tech, equipment was taking up space in the walkways, making navigation difficult.

Need for Support

As previously discussed, support from top administrators is vital for budgeting of equipment, personnel, and creating space for the simulation laboratory. Four of the six labs were high-tech with audio-video recording and playback capability, and separate operator suites with two-way mirrors for viewing student performance. They owned high-fidelity manikins and the patient rooms were identical to a hospital or clinic. Three of

these four labs had a dedicated simulation team. The theme gleaned from these programs was the *need for support* from administration.

Review of Documents

Simulation scenarios, meeting minutes, and schedules were requested from all six programs that were observed. Only two nursing schools could provide simulation scenarios. Three of the schools utilized published scenarios from Elsevier; they were not available for document analysis. Two other program managers shared that they modify previously published scenarios and adapt them to the need of their learners. They were not provided upon request.

Program 2. The simulation scenarios provided for document analysis were a combination of what are called standardized and non-standardized scenarios. Both types of scenarios are being used in the medical-surgical courses. The standardized scenarios created by the national curriculum team have been in the making for a few years. Revisions of these scenarios are restricted. Any changes or necessary corrections must be approved by the national team first and the requested change must be supported with current evidence. These scenarios contained learner objectives tied to course outcomes and contained the required elements of a best practice simulation scenario.

The nonstandardized scenarios were created by several staff members over the years. All objectives were broad and none were specific to the learner's performance. In addition, objectives were not linked to the course outcomes. One nonstandardized scenario was titled *Cardiogenic Shock;* however, the patient in the scenario had a heart attack that did not develop into cardiogenic shock. These scenarios are often outdated and

not based on current evidence. Also, discrepancies were noted between the physician's orders and the medication record.

The themes that developed from the documents from program two are the need for *faculty development* and *time*. The standardized scenarios were years in the making, which supports the time it takes to develop and implement a simulation scenario. The need for faculty development is evident in the non-standardized scenarios that did not have learner specific objectives or current evidence-base practice.

Program 5. This school is using published scenarios and adapting them to meet the needs of the learners. All of the elements of a best practice scenario are included; however, objectives were often numerous and too specific. There was no evidence that the scenarios were linked to the course outcomes. The chart exhibits, such as the physician orders, contained cues for students, which they would not find in real-world practice. The simulation manager from program five devoted countless hours to creating and revising the scenarios. Further education on the development of objectives and scenario construction would benefit the faculty at Program 5.

Themes from Document Analysis

Documents from two schools of nursing were analyzed for this study. Two themes were evident from the document analysis. The themes were the need for *faculty development and time.*

Need for Faculty Development

Purchasing published scenarios may be cost prohibitive for some nursing schools. Therefore, some deans and directors rely on the simulation team or manager to create

scenarios. However, as I noted in the document analysis from program two, there is a gap in the product of faculty-produced scenarios. The AZBN requires nursing programs in the state of Arizona using simulation to adopt the INACSL Standards of Best Practice: Simulation for scenario construction and implementation. The need for a faculty development program is supported by the results and the AZBN advisory opinion.

Need for Time

Developing simulation scenarios is time intensive. As previously discussed, it took the curriculum team 2 years to develop simulation scenarios. There are many components required to developing a simulation scenario. The time required to create scenarios is not feasible and is often the cause for purchasing scenarios from a reputable vendor. Some the simulation labs are running scenarios all day long Monday through Friday and do not have the time to create new scenarios.

Conclusion

The five themes that emerged from the data confirm the existing information in the literature on barriers to implementing simulation into nursing curriculums (Adamson, 2010; Arthur et al., 2013; Buchanan et al., 2013; Fountain, 2011; Oermann, 2015). The data obtained from the interviews provided a deep understanding to the phenomenon surrounding the use of simulation in nursing programs. The data collected revealed that all participants recognized the need for support from administration for budgeting supplies and staff. Peer support and collaboration were also discussed as promoters for a successful simulation program. The need for faculty development in simulation was the most common theme shared by both faculty and deans. Also, the results of the document

analysis supported the need for creating a faculty development program. There are gaps of what constitutes training in simulation pedagogy among the participants. When asked about training that they have had to prepare them for simulation, eight (62%) of the 13 educators had not attended a structured training in simulation pedagogy.

Based on these results, creating a professional development program on simulation pedagogy for educators is crucial. Providing a faculty development program may increase use of simulation, faculty *buy-in*, and collaboration between faculty and the simulation team. Moreover, having educators that are trained and experienced in simulation will optimize the learning experience for nursing students and improve patient safety. A professional development program in HFS that will include all themes will be discussed in Section 3.

Section 3: The Project

Introduction

The results of the data I collected from the interviews and documents emphasized the need for professional development in simulation pedagogy. In addition to the need for faculty development, the need for time, resources, space, and support was revealed from all sources. I will discuss the themes in the literature review in this section, and they will be included in the professional development in the following order: need for faculty development, need for time, need for resources, need for space, and need for support. It was evident that from the interviews of faculty, deans, and directors that the use of simulation in their curriculum could benefit from a professional development program in simulation. As such, I placed emphasis on simulation pedagogy in the professional development.

Nursing educators require knowledge related to scenario development, implementation, and effective debriefing of students. In addition to knowledge in simulation pedagogy, deans and directors need information on operationalizing simulation into the nursing curriculum. Creating a professional development program will provide structure, consistency, and the skillset necessary for implementing simulation in nursing programs from an organizational perspective to facilitating students during a scenario. Rizzolo, Kardong-Edgren, Oermann, and Jeffries (2015) discussed how the data corroborated the connection between effective faculty simulation preparedness and improved learning outcomes for students. Therefore, ensuring that

educators have the skills required to implement simulation pedagogy is essential for positive student outcomes and the transition to practice.

Description and Goals of the Project

The purpose of the 3-day professional development is to provide nursing educators an opportunity to gain the knowledge, skills, and attitudes for implementing the use of HFS. Also, the professional development will provide deans, directors, and simulation managers with the information for operation and management of resources including equipment and personnel. The overarching goals for the learner are:

- to prepare for the implementation of the standards of best practice for simulation into a nursing curriculum;
- to provide the necessary, evidence-based knowledge and skills to implement simulation as a teaching strategy in the nursing curriculum; and
- to provide operational principles, including timelines and checklists, related to implementing simulation.

The professional development program is appropriate for all nursing faculty who will be participating in simulation as well as for deans and directors that are starting a simulation program or need to improve their current simulation program. Deans and directors are often the promoters for implementing new technology and for identifying the means to fruition (Al-Ghareeb & Cooper, 2016). Professional development participants will learn about the standards of best practice, the components of a simulation scenario, and debriefing. A discussion of time requirements and managing resources, space, and support will address the themes from the study. The workshop will

be interactive and include the basic operation of a high-fidelity simulator, role-play during a simulation scenario, and small group scenario development.

Rationale

Based on the study results, it was clear to me that professional development on simulation pedagogy would benefit the participants. In addition to simulation pedagogy, it was evident that leadership needed to be included in the professional development to address the remaining themes of time, resources, space, and support. Without support from leadership, simulation programs will suffer. Fifty-five percent of the participants described training as a barrier to implementing simulation. Also, several of the participants were not aware of the AZBN advisory opinion or the INACSL Standards of Best Practice: Simulation, which indicated a need for training in simulation pedagogy. The inconsistencies from the participants related to training or lack thereof suggested the need for a formal training program. The literature also confirmed that faculty training is an area of need for nursing programs (Alexander et al., 2015; Rutherford-Hemming, Lioce, Kardong-Edgren, Jeffries, & Sittner, 2016). There are inconsistencies among researchers as to how training should be achieved and which methods are most effective (Cheng et al., 2015; Nordquist & Sundberg, 2015; Roh et al., 2016). The proposed professional development will include detailed content for all aspects of simulation design and delivery as well as considerations related to operations and resource management, which align with the themes revealed in this study.

As I previously discussed, the AZBN (2015) advised that facilitators be formally trained in simulation, participate in ongoing training, and be evaluated by an experienced

facilitator. The NCSBN (2016) provided a faculty preparation checklist for schools of nursing, which includes providing a means for faculty development in simulation pedagogy. Also, both the NCSBN and the AZBN advisory opinion provide guidelines for core resources, such as space, equipment, and personnel, to support the use of simulation in nursing education. Likewise, both regulatory boards require that the INACSL Standards of Best Practice: Simulation is adopted if simulation is used as a substitution for clinical. A structured faculty development program in simulation training is necessary to obtain the knowledge, skills, and attitudes needed to successfully deliver meaningful simulation-based learning (Topping et al., 2015). Additionally, Hollema (2015) reported that formal education could improve educator confidence and comfort level when facilitating and debriefing simulation. Having faculty trained in simulation instruction is necessary to promote student learning and improve patient safety and outcomes.

Review of the Literature

I conducted a review of the literature to search for Internet resources, studies, and peer-reviewed articles related to the themes from this study, which were the need for professional development, time, resources, space, and support. However, the need for professional development in simulation pedagogy was prioritized, and the remaining four themes were integrated into the training. A literature search was performed using Google Scholar, ERIC, EBSCO, CINAHL, Medline, and the Society of Simulation for Healthcare (SSH) databases. These databases were searched for sources published between the years 2013 and 2017. The keyword search terms I used in this search were *faculty development in simulation, instructional design, simulation and time, simulation*

and administrative support, simulation costs, simulation and space, nursing faculty development, professional development, simulation operations, simulation pedagogy, and *simulation in nursing education.* Articles related to professional development and operations in simulation were included in the literature review. I will discuss a synthesis of the results from this review of the literature review in the order of arranged themes in the following subsections.

Professional Development

The results of the data I collected from the interviews and documents emphasized the need for professional development in simulation pedagogy. Over the last decade, the implementation of simulation in nursing education has become prevalent (LaFond & Van Hulle-Vincent, 2013). Simulation is slowly becoming recognized as a specialty within the nursing profession and requires formal education in simulation methods (Thomas et al., 2015). Topping et al. (2015) found that educators require a broad range of knowledge, skills, and professional attitudes to effectively use simulation. However, teachers are not currently equipped with the knowledge or skill set to teach using simulation (Sole et al., 2013). Responses from deans and directors indicated that they were not clear as to what professional development in simulation pedagogy entailed. Therefore, the target audience for the proposed professional development will include nursing faculty, deans, and directors.

A master's degree in nursing is the minimum requirement to teach theory in nursing, and it is the preferred degree to teach clinical. Due to the shortage of master's-prepared nurses, a bachelor degree in nursing is acceptable to teach clinical in the state of

Arizona (AZBN, 2017). A bachelor degree in nursing program is focused on basic nursing curriculum and would not include simulation training. The master's-prepared nurse may receive training in nursing education but would most likely not have training in simulation pedagogy (Benner et al., 2010). As simulation becomes more prevalent in nursing programs, the need for formal coursework in simulation may be sought by both new and experienced faculty.

Faculty prepared in simulation pedagogy can render rich educational outcomes for students and more importantly, improve patient outcomes. Bayar (2014) and Hallmark (2015) discussed the impact of high-quality teachers on student learning outcomes. Having educators that are unprepared in simulation pedagogy could lead to poor course outcomes, ineffective facilitation and cueing during the scenario. Also, if debriefing is not provided or is superficial, then there will be missed opportunities to close gaps in knowledge or misconceptions of the nursing student. In addition to poor student outcomes, Lancaster, Stein, MacLean, Van Amburgh, and Persky (2014) indicated that ineffective teaching could lead to high faculty turnover and ineffective graduates. Hollema (2015) expressed the importance of initial and ongoing faculty development that is vital to a successful simulation program. Effective professional development continues to be a pressing need for schools of nursing.

Professional development in simulation is often not understood or omitted during the planning stage of building a simulation lab. A recommendation from the NCSBN study was that nursing programs have a process for training and orienting their faculty to simulation (Alexander et al., 2015). Additionally, the 2016 INACSL standard for

facilitation requires that educators that will participate in simulation receive formal coursework and continuing education in simulation pedagogy (INACSL Standards Committee, 2016).

Although the literature supports the need for formal training in simulation, there is no consensus on how to prepare educators for simulation (Faz, Van Sell, & Sheriff, 2014; Kinnear, Smith, Akram, Wilson, & Simpson, 2015). The development of the INACSL standards and certifications through SSH are promoting consistency for professional development (Peterson, Watts, Epps, & White, 2017; Roh et al., 2016). Also, recommendations from the NCSBN study are to incorporate the INACSL standards of best practice into simulation programs (Hayden et al., 2014). Therefore, I used the INACSL standards of best practice and the SSH certification blueprint for healthcare educators as frameworks to model the proposed professional development.

Both INACSL and the National League for Nursing offer 1-year fellowships in simulation; however, they may be cost prohibitive and are limited in the number of participants accepted each year. The NLN is open to 20 participants per year and consists of online modules, webinars, and coaching. The INACSL fellowship is open to 30 applicants and consists of webinars, face-to-face workshops, and mentoring. Ng and Ruppel (2016) created a 1-year, part-time fellowship geared toward developing simulation leaders. The fellow commits to 2 days per week and during the fellowship creates and implements a project. Content areas covered during the fellowship include technology features, educational theory, debriefing, and professional development.

During this time-intensive program, the fellows participated in a 4-day educator course on debriefing, worked on research projects, and presented at simulation conferences.

Several cities and states have developed consortiums or alliances to pool resources, share knowledge of best practice, and facilitate research. The California Simulation Alliance (CSA) is one example. CSA has been an active organization providing educational opportunities for faculty development, sharing best practices, providing a venue for networking, consulting, and conducting research (Waxman, 2016). CSA offers 2- and 3-day immersion courses for faculty as well as a mentoring and apprenticeship program (Waxman). A second example is the Simulation Medical Training and Education Council of Louisiana, which was enacted through legislation for simulation-based education (Lemoine, Chauvin, Broussard, & Oberleitner, 2015). Faculty development was determined to be the highest priority of this council (Lemoine et al., 2015). Phase 1 of the face-to-face training included lecture and hands-on practice (Lemoine et al., 2015). Topics covered were curriculum development and evaluation, designing and using assessment, selecting and designing scenarios, coaching and feedback strategies, and debriefing (Lemoine et al., 2015). These are two of the many organizations that have developed in the last decade to support simulation-based education. Other consortiums and alliances that are active in promoting simulation-based education are located in Oregon, Florida, Tennessee, Mississippi, Hawaii, and Indiana.

There are several online resources to gain knowledge in simulation through professional organizations. The National League for Nursing Simulation Innovation Resource Center has 17 asynchronous learning modules available for purchase. Through

a grant, the University of Washington has created four introductory and four advanced self-paced modules for learning simulation at no cost to the public. The INACSL standards of best practice in simulation can be obtained at no cost and are located on the INACSL website. In addition, there are several webinars available for purchase. Online courses are convenient and flexible for the learner and may help alleviate lack of access to training (Kim, Park, & O'Rourke, 2017). However, Jeffries, Dreifuerst, Kardong-Edgren, and Hayden (2015) described the importance providing an education similar to those in the NCSBN study, which was 2- and 3-day face-to-face workshop. The content included in the workshops to prepare faculty for the NCSBN study included the following:

- scenario development and implementation,
- theoretical underpinnings,
- theoretical-based debriefing model,
- integrating concepts that are found in the curriculum, and
- evaluation tools for students and faculty (Jeffries et al., 2015).

The INACSL Standards of Best Practice: Simulation provided the framework for training the faculty for the NCSBN study (Rutherford-Hemming et al., 2016). In addition to the content covered in the NCSBN study, the following are recurring topics found in the literature and will be included in the proposed faculty development:

- terminology and definitions,
- technology and equipment, and
- operations.

The NLN (2014) recommended that leaders budget for professional development in simulation and debriefing. Financial considerations for personnel and nonpersonnel aspects related to operating a simulation lab will be included in the professional development.

Creating a scenario is one of the most time-consuming aspects of simulation. However, it is important for faculty and administration to understand the components of a scenario to effectively create or edit an existing scenario. Scenario development was taught at two and three-day workshops and online courses (Jones et al., 2013; Taibi & Kardong-Edgren, 2014). Simulation design provides an outline for creating an effective simulation. Simulation design was cited extensively as content included in workshops (Jeffries et al., 2013; Jones et al., 2013; Kinnear et al., 2015; Ng & Ruppel, 2016; Roh et al., 2016) and incorporates the components of best practice for optimal learning. Having a solid understanding of simulation design will prepare the educator for creating or editing simulation scenarios.

A discussion on theoretical support and adult learning theories is commonly taught in simulation workshops (Alexander et al., 2015; Jones et al., 2013; Kim et al., 2017). To effectively facilitate simulation and understand how students learn, it is important for the educator to understand learning theories that support simulation pedagogy. Debriefing is known as one of the most important aspects of simulation. As such, debriefing was found in all current faculty development curriculums (Cheng et al., 2015; Jeffries et al., 2013; Jones et al., 2013; Kim et al., 2017; Kinnear et al., 2015; Taibi & Kardong-Edgren, 2014). Guiding a debriefing is both an art and skill. A trained

facilitator guides the student to reflect on his or her actions during debriefing to dispel misconceptions and reinforce correct interventions. Several training programs included terminology and definitions related to simulation. The glossary provided by INACSL is an excellent resource for educators and provides consistency in terminology among simulationists. Content related technology and operations will be addressed in the discussion of *resources* and *space*. Based on the recommendations from the NCSBN study and the literature review, the proposed professional development will be a three-day interactive workshop.

Time

Simulation is time intensive as there are many components that must be considered and require preparation. The BSN educators reported that they did not have time to create scenarios or prepare for simulation scenarios. Similarly, participants from the study reported time as a barrier to:

- create scenarios,
- implement simulation,
- the time required to train faculty, and
- time to grow the simulation program.

Participants that were teaching didactic reported difficulties in managing their course responsibilities along with assisting in simulation. Also, creating the space, purchasing capital equipment and resources, creating scenarios, and putting together a simulation team can take years to accomplish. Time is needed to develop a sustainable program with

full integration into a nursing curriculum. The need for time was a recurring theme gleaned from interviews, documents, and observations.

The literature supported that on many levels, simulation is a time-intensive teaching method. Creating scenarios is time-consuming (Leighton, 2015) and learning how to run the simulator takes additional time. Currently, there are no studies that identify the amount of time that simulation requires of faculty (Aldridge, 2016). Taplay, Jack, Baxter, Eva, and Martin (2015) found that it often took years for schools to unpack the simulator for use and that integrating simulation into the curriculum happens slowly. To save time creating new scenarios, consider revising free scenarios available from other schools of nursing or purchase scenarios from vendors such as Laerdal.

Faculty may need an adjustment in their workload credit when assigned to participate in simulation. Faculty workload will increase for those creating and conducting simulation (Acton, Chipman, Lunden, & Schmitz, 2015; Nordquist & Sundberg, 2015). Kardong-Edgren (2015) discussed how the faculty workload related to simulation is often ignored, which can result in faculty burn out and turnover. Hollema (2015) reported that faculty identified that they would need 0.5 full-time equivalents for planning and implementing simulation. Leaders should consider hiring a designated simulation coordinator to facilitate setting up the equipment and simulation environment (Aldridge, 2016; Jeffries et al., 2015). An alternate option would be to hire or designate a full-time simulation coordinator and team to manage all simulations according to best practice. Recommendations found in the literature support the need to include the following in the professional development: faculty workload or release time to

accommodate learning simulation, creating, and piloting simulation scenarios and considerations for staff support such as a simulation coordinator.

Resources

Simulation is costly and requires financial resources to create the simulation lab, purchase high-fidelity manikins, supplies, and ongoing maintenance. The BSN lab manager expressed concerns regarding a lack of resources such as technical support and lab space to accommodate the masses. Similarly, staffing the simulation lab with a dedicated team was recommended by 13(65%) of the study participants. Three of the simulation programs observed was staffed with a dedicated simulation team; however, six of the programs represented in this study had only a manager designated to the simulation lab, and two of those managers were responsible for both running simulation and the nursing skills lab. In addition, the participants from the study expressed that the start-up costs and maintain a simulation program can be cost prohibitive for many nursing programs. Funds are required for the purchase of the manikins, associated warranties, and related medical equipment and supplies to create realism.

Allocation of financial resources must be considered when implementing simulation and may be a challenge for many institutions. Costs are involved in the capital investment of manikins and associated warranties, creating a space that is similar to that of a hospital, audio/video recording, props, and equipment such as hospital beds and intravenous pumps. Establishing a well-developed plan of simulation activities should include the type of manikins and equipment needed. A taskforce may be needed to identify how simulation will be integrated into the curriculum, which may allow

additional equipment to be purchased over a longer period. Consideration for the simulations offered should ideally be included in the planning phase of a simulation center development (Galati & Williams, 2013) and will assist in guiding the type of manikin needed and associated resources to create realism for the learner. Overall, costs can be divided into two categories: nonpersonnel and personnel costs. Additional financial considerations include:

- costs involved in the time to learn and develop a simulation scenario,
- cost of support staff, and
- cost of professional development.

It is important to provide physical and contextual cues to create a perceived authentic environment for the learner, which can help with meeting the objectives of the scenario. The NCSBN recommends that schools of nursing that are substituting simulation for clinical hours have equipment and supplies that are necessary to promote a realistic patient environment for students (Alexander et al., 2015). The AZBN advisory opinion (2015) described specific physical resources and personnel requirements when using simulation as a substitute for clinical. Gardner et al. (2015) reported that the initial funding for a simulation program is often achievable, but underscored the importance of establishing a method of financial sustainability. Administrators and staff should consider the possibilities of collaborating with local hospitals or clinics that wish to donate expired supplies (Lazzara, Benishek, Dietz, Sala, & Adriansen, 2014) to decrease expenditures. For schools with limited budgets, it may be necessary to seek outside funding from community resources or grants (Galati & Williams, 2013; Jeffries et al., 2015; Lazzara et

al., 2014; Leighton, 2015). Ensuring a sustainable simulation program requires careful cost analysis of the equipment needed and replacement of durable equipment.

Thorough planning and open communication with the administration about the needs of the simulation program will be necessary. It may take several fiscal years to acquire everything that the program needs. Securing funding for professional development is equally important. Hence, business operations related to personnel and nonpersonnel and physical space will be covered in the professional development.

Space

A lack of space was identified by the BSN manager to accommodate the number of students that needed to replace clinical with simulation. The need for space was one of the themes from the study findings. Eleven of the 20 participants reported that the need for space could be a barrier to simulation. The size of the simulation labs limits the number of students that can participate in a simulation. One program did not have an operator suite or audio-playback capability. One program did not have a separate space for the operator and faculty facilitating the simulation scenarios.

Space should replicate the clinical environment to create realism for student *buy-in* Lazzara et al. (2014) described a simulation center as "a combination of clinical, educational, and theatrical" (p. 25) and emphasized the importance of space planning. Considerations should be made for the technology aspects such as Internet and audio-visual equipment (Riley, 2016). Also, thought should be given to the storage and organization of supplies and equipment for ease of use and tracking inventory. Whether retrofitting an area or new construction is deliberated, careful planning that includes all

stakeholders is necessary to ensure that a designated space for equipment, supplies, and technology requirements are met. The NCSBN guidelines on simulation indicate that a nursing program has appropriate physical space for simulations including storage and an area for debriefing (Alexander et al., 2015). The AZBN advisory opinion (2015) includes a checklist that includes the following:

- "a simulation room;
- debriefing space that supports confidentiality;
- audio and video recording and playback equipment;
- separate space for the operator of the manikin; and
- adequate personnel and resources to set up and break down the simulation" (p. 4).

An organized lab increases efficiency and reduces frustration (Scheese, 2015). The literature supports the inclusion of these elements and equipment checklists in the professional development.

Support

The concept of support was described by the study participants in various ways. For some, support meant having physical or personnel resources to implement simulation. Many of the participants did not have IT support readily available to assist with troubleshooting technology issues. Others described a lack of *buy-in* or understanding from colleagues at all levels. Although some of the faculty participants believed in the power and value of simulation, they did not want to participate due to the time-intensive nature of simulation. These participants preferred that a designated

simulation team run the simulations. The deans that were interviewed were proponents of simulation and discussed the challenges to receive support from the top leadership team. As previously discussed, support from top administrators is vital for budgeting of equipment, personnel, and creating space for the simulation laboratory.

Recommendations to overcome these barriers would be to hire a designated simulation manager and team to manage and deliver all simulations. A designated simulation team would allow faculty to remain focused on their didactic and clinical courses. Secondly, provide training for IT personnel so that he or she can assist with troubleshooting manikin issues and audio and visual recording system as well as other electronic equipment such as electronic medication dispensers and software updates as needed. Manikin training is available through the vendors that manufacturers. A critical first step for deans and directors is to create awareness with the upper-level administration (Taplay et al., 2015). To overcome resistance to using simulation a simulation workshop should be required by all educators (Larsen & Schultz, 2014). A recommendation would be to invite faculty and administration who are not proponents of simulation to a simulation scenario and include all educators in simulation training.

Technology support needs to be in place to ensure the success of a simulation program. Providing technology support may help alleviate a faculty member's reluctance to use simulation (Gardner et al., 2015). Jeffries et al. (2015) recommended creating a trained simulation team that is passionate about simulation. Hiring a simulation coordinator to manage the efforts of the simulation program is recommended by experts in the field (Gardner et al., 2015; Gore & Schuessler, 2013; Jeffries et al., 2015; Lazzara

et al., 2014). To ensure a robust and sustainable simulation program that meets the needs of the organization, support from administration is essential. Lazzara et al. (2014) reported that backing from the organization is essential for training and dedication of resources for staff, supplies, time, and funding. Lazzara et al. advised inviting senior administrators to a simulation demonstration to generate their interest and support. In addition, leadership is needed to duplicate the same results as the recent NCSBN study (Kardong-Edgren, 2015). In summary, support from upper-level management is needed for financial planning to secure equipment, allocating designated simulation space, hiring support staff, and supporting faculty development. Including deans and directors in the professional development will provide the knowledge and requirements necessary to support the endeavors of a simulation program.

Project Description

The purpose of the professional development workshop is to provide consistency in the facilitation of simulation by faculty to ensure optimal student learning outcomes. Simulation is becoming increasingly popular and is often an expectation to incorporate into nursing curriculums, either to augment didactic or as a substitution for clinical. The participants in the study indicated that a priority need was a training program for the use of simulation pedagogy. Also, the AZBN advisory opinion on simulation states that facilitators must have formal training, continuing education, and targeted work with an expert in simulation (AZBN, 2015). All educators, full-time and adjunct that will be facilitating simulation are required to attend the 3-day training.

The goals of this project are to prepare nurse educators for the implementation of the standards of best practice for simulation and provide the knowledge and skills to use simulation as an educational approach. This project is based on Kolb's Experiential Learning Theory and includes interactive learning and participation. During the training, the five themes from the study will be incorporated into the content as well as the INACSL Standards of Best Practice: Simulation, the AZBN advisory opinion, NCSBN guidelines, and SSH. Available resources from the vendors, Laerdal and Gaumard, will be used for the basic operations of the manikins. The interactive portion will include scenario construction, participating in a scenario, debriefing and learning how to operate the simulators. During the simulation scenarios, the faculty would assume the role of the student nurse to experience the simulation from a student's perspective.

Resources Needed

The training will be presented to all deans and directors, core nursing and adjunct faculty that will facilitate simulation. The theory presentation will take place in the health assessment laboratory, which can accommodate 16 people. There are five simulated patient rooms and five briefing rooms. There is a control room for the operator of the manikin for each of the simulated patient rooms. Prebrief and debrief will occur in the briefing rooms. All rooms have the audio and video-recording capabilities. The patient scenario will take place in the simulation laboratory in one of the simulated patient rooms. The assistance of the at least two simulation specialists will be needed to operate the manikin during practice simulations. Every learner will receive a printed copy of the PowerPoint presentation for note-taking, the AZBN Advisory Opinion, and the INACSL

Standards of Best Practice: Simulation. Lunch and beverages will need to be catered and paid for by the nursing department as there is limited food service available on campus. Refer to Appendix A for further details.

Potential Barriers

The greatest barrier is the 3-day period required for training. Training will need to take place when full-time educators have a break between sessions. This time is ideal, as there would be no students so classrooms and laboratories would be available for use. Adjunct faculty that will be facilitating simulations will need advanced notification as many still work in the acute care settings where schedules are often made three months in advance. The cost to pay adjunct faculty to attend the professional development workshop is another barrier.

Implementation

The completed professional development workshop details are in Appendix A. The first section of day 1 will consist of a lecture followed by an interactive session on how the functions of the simulator and basic operations. The program will occur during one or more of the three breaks during the calendar year. This will depend on faculty turnover and needs of the department. Content has been carefully chosen based on the objectives, current evidence, and best practice found in the literature. A timetable of specific events surrounding the program is outlined in Table 2.

Table 2

Project Study Timetable

Event	Time	Stakeholder
Needs assessment	8 Weeks prior	Administration Program planner Participants
Determine scenario Reserve room Send electronic invitation	6 Weeks prior	Program planner Administrative assistant
Create event packets	4 Weeks prior	Program planner
Ensure lunch/refreshments	1 Day prior	Administrative assistant
Project implementation Didactic-intro to simulation	Day 1	Program planner
Project implementation Create a scenario	Day 2	Program planner Participants
Project implementation Orientation to SimMan Simulation immersion	Day 3	Program planner Simulation specialists Participants

Roles and Responsibilities

To ensure the success of the program, each of the key stakeholders will have specific roles and responsibilities. The dean will assist in assessing the needs of the

faculty and will determine who should attend the faculty development program. The Dean is responsible for ensuring that funds are in the budget to compensate adjunct faculty for attending the program and meals. The administrative assistant is responsible for reserving the conference room, sending electronic invitations to the participants, printing copies of handouts, and ordering food and refreshments for each day. The simulation coordinator is responsible for delivering the educational content. Therefore, he or she will prepare by reviewing the contents of the program and update as needed to meet current evidence or standards of best practice. Learners will arrive on time and be ready to be an active participant in the learning process and to complete an evaluation daily.

Project Evaluation Plan

Evaluation is an essential aspect to determine the effectiveness of an instructional program. An outcomes-based approach is a multilevel method for determining the various impacts of the workshop. Chen, Kelley, and Haggar (2013) described outcomes-based evaluation as benefits or changes in the learner after the faculty development. According to Kirkpatrick and Kirkpatrick (2016), evaluations of a training program are important to improve the training, maximize the transfer of learning, and to show the value of the training to the organization. The evaluation plan should be identified in the needs assessment or analysis phase by identifying what must be accomplished and determine the behaviors expected after the training. The Kirkpatrick Model (Kirkpatrick & Kirkpatrick, 2016) includes four levels of evaluation:

1. Reaction. How satisfied is the learner with the professional development?

2. Learning. Is there a change in knowledge, skills, or attitude?
3. Behavior. Has the learner applied what he or she has learned?
4. Results. Is there a change in practice that improved student outcomes or the organization?

All attendees will be provided with an end of course survey for determining the learner's satisfaction with the professional development program. Attendees that will facilitate simulations will be evaluated on the next two levels of the Kirkpatrick Model (Kirkpatrick & Kirkpatrick, 2016): learning and behavior, the latter of which is assessed by the use of a self-assessment survey and an annual evaluation rubric. After each simulation, the facilitator can self-assess his or her debriefing skills using the Debriefing for Simulation in Healthcare-Instructor [DASH] (Appendix F). A peer experienced in simulation will evaluate the learner to determine the learner's application of mastery level of the knowledge, skills, and attitude related to facilitating simulation. Students will also have the opportunity to complete an evaluation of the simulation experience and the facilitator (faculty) using the Debriefing Assessment for Simulation in Healthcare-Student [DASH] (Appendix G).

Leadership members play a crucial role in ensuring that a simulation program is implemented according to best practice. The advisory opinion from the AZBN provides guidelines for resources, support, and education that must be in place when substituting simulation for clinical. The NCSBN has also made recommendations for resources, personnel, and procedures and policies to ensure quality experiences for students. A checklist (Appendix I) was created that combined both regulatory bodies'

recommendations that will be used to evaluate the deans and directors on Kirkpatrick's level four evaluation- results. Level four Kirkpatrick's model is determining if there is a change in practice that leads to a difference in the organization with better outcomes. Kirkpatrick and Kirkpatrick (2016) explained that it is critical that managers and leaders reinforce the information and skills. Support from the leadership of the training and follow-up activities will promote the positive transformation of knowledge, behaviors, and skills of the faculty.

Project Implications

The professional development project can positively influence the delivery of HFS throughout nursing curriculums. This project unmistakably falls into the sphere of social change. Simulation, an experiential learning activity, promotes bridging of the theory to practice gap in nursing education. Simulation is a powerful learning strategy that allows the nursing student to step into the role of the registered nurse and provide care for a patient. Facilitating simulation and improving student learning requires faculty to establish a psychologically safe environment that supports learning and reflective practice. Preparing deans, directors, and faculty with the knowledge, skills, and attitude of pedagogical theories to facilitate simulation advances teaching effectiveness and student learning outcomes. The improvement of student learning outcomes will in turn positively affect social change by improving the health of the population in which these future nurses will work. The 3-day professional development offers immersion in simulation pedagogy as well as considerations for operations, personnel, and resources taught by an expert in simulation training.

Conclusion

In this section, I discussed the project, which is a 3-day professional development workshop immersion in simulation pedagogy that is founded on adult learning theories. In this section, I provided an overview of the themes and curriculum topics that are included in the professional development that was derived from the results of the study. The final project is guided by current best practice, recommendations from regulatory bodies related to simulation, and the principles of Kirkpatrick's levels of evaluation. Not only is it necessary to evaluate the presenter of the program, but also the transfer of knowledge by the learner, by a person experienced in simulation. Nursing students will evaluate the effectiveness of the faculty facilitating simulation, because establishing a safe learning environment is conducive to learning.

In Section 4, I will discuss the strengths of the project as well as limitation. I will provide recommendations for alternative approaches to the problem. An analysis of what I learned about the research process, development of the project, and my personal growth will be discussed as well. Lastly, I will reflect on the importance of my work, implications, applications, and directions for future research.

Section 4: Reflections and Conclusions

In this final section of the doctoral study, I will address the strengths, limitations, and recommendations for alternative approaches regarding this professional development project and study. I will provide a discussion on what I learned about the process of research and the project development. Also in this section, reflections on my journey and the importance of my work are discussed. Lastly, I will examine the potential impact on social change, applications, and directions for future research.

Project Strengths and Limitations

I created the professional development program based on the results of the study where *the need for faculty development* was the underscored theme. It was apparent that faculty and the dean of the BSN School of Nursing lacked the knowledge or skills to implement simulations. In turn, this resulted in missed opportunities for the students to participate in experiential learning opportunities during on-campus clinical. Ensuring that all members of the nursing department attend the professional development program will provide BSN with the necessary information for a successful and sustainable simulation program. Hence, the immersion nature of the 3-day program is a strong point of the training. Mapping the content to SSH standards, the INACSL standards, and the NCSBN recommendations are equally strong points of the project. The interactive design of the professional development program, including hands-on activities and opportunities for self-reflection, touches all aspects of Kolb's ELT of how students learn and are perhaps the leading strengths of the program.

Perhaps the greatest limitation of the project is the time required by the learners to attend. Carving out 3 consecutive days to attend training during a nursing program is challenging. Also, the cost of wages for the adjunct faculty to attend may be a limitation for some institutions. Cheng et al. (2015) discussed other challenges such as providing ample opportunities for each learner to practice briefing, simulation, and debriefing methods. Another potential drawback could be a delay in the time from the initial training until the opportunity to facilitate simulation scenarios with nursing students as there may be decay in the content and skills learned. The program coordinator should consider the limitations and carefully plan the training to allow for immediate and relevant practice.

Recommendations for Alternative Approaches

The problem I addressed in this project study was that nursing educators were not prepared to implement HFS as a teaching strategy. An alternative approach to address the problem could have been a quantitative, descriptive survey to determine the perceptions of the nursing faculty on implementing simulation. Using a 5-point Likert scale questionnaire and three open-ended questions the survey link would have been e-mailed to nursing faculty in the state of Arizona using the same criteria as this case study. Alternate definitions of the problem could have been one of the following:

- There are not enough clinical sites secured for the number of students that need clinical placement; or
- there is a lack of communication between the admission and nursing departments.

One factor that led to the problem at BSN was that the admissions department was admitting more students than what was allowed by the state board of nursing. The admissions' department may not have been aware of the limits imposed by the board of nursing or that information may not have been communicated to admissions by the administration. Therefore, there could have been a lack of communication between admissions and nursing. A possible solution would be the creation of a policy or practice that would require all stakeholders to hold regular meetings and updates regarding enrollments. A position paper addressed to nursing leadership with policy recommendations regarding the use of simulation would have been an alternative approach to disseminating the findings of this study.

Scholarship, Project Development, and Leadership and Change

During this doctoral journey, I have gained knowledge regarding how to systematically create a research study and apply that information to investigate a problem. In the past few years, I have learned and lived Boyer's (2016) the scholarship of discovery, the scholarship of integration, and the scholarship of application. Through the scholarship of discovery, I was able to research and systematically study a problem. Through the scholarship of integration, I was able to interpret study findings and gain new insights into the problem and the realm of research. Through the scholarship of application, I was able to apply new knowledge to an important problem.

I believe that I am fortunate to have been a student of Walden University's Higher Education and Adult Learning program that required a project deliverable. Because of this final project, I will be able to apply the scholarship of teaching to other nursing

educators. Also, I have learned that scholarship is essential to my role as a nursing educator and that contributing to research is crucial to progress the science of nursing.

Initially, creating a 3-day professional development program for colleagues appeared to be an easy task. However, my literature search revealed several approaches to address learning in the workplace and faculty development (Cunningham & Hillier, 2013; Haines & Persky, 2014; Hallmark, 2015; Jeffries et al., 2013) that I had not initially considered. Also, I had not considered that all themes from the study needed to be addressed in the professional development, and this was initially a challenge.

There are several steps in creating a professional development program. The first step is identifying the problem and conducting a targeted needs assessment and determination of who is the target audience (Kern, 2016). It is important to identify the stakeholders to determine how they might be affected and what effect they have on the proposed project (Gardner et al., 2015; Lancaster et al., 2014). During this journey, I learned that evaluation of student learning outcomes is difficult to measure from a professional development program (Chen et al., 2013). However, it is important to evaluate the transfer of learning and not just an end of course satisfaction survey. The learners need to be evaluated to determine if the desired behavior and skills are in fact being applied after attending a professional development program. If not, then targeted work and support should be offered until the desired results are demonstrated.

During my doctoral journey, I accepted a leadership position as a manager for a simulation center. I am certain that my previous simulation experience and doctoral work in simulation prepared me for the role. What I have learned through this journey is

applied daily as I continue to grow and mentor my direct reports. Many of the educators are new to academia and simulation, and I can share research and best practice with others daily. I see big and small changes every day in the practice of those that I am mentoring. Being immersed in the literature has made me more confident in my abilities to lead and create a change in others. I am excited about sharing my project with many institutions, promoting social change within nursing schools, and ultimately contributing to closing the theory-practice gap in nurse graduates.

Reflection on Importance of the Work

There is an abundance of peer-reviewed articles related to the lack of faculty development in simulation; however, there was little data on what the best method is for training faculty. Based on the results of this study, I was able to create formal immersion training that can be used immediately and shared with other simulation experts and program developers. A professional development program is desperately needed in the field, and I hope to have opportunities to present the program to local and remote schools of nursing. I believe that this research and project are well-timed in light of the shortage of clinical sites in the state of Arizona. I am proud of the knowledge that I have gained and the dissemination of that knowledge. I look forward to the future contributions to nursing academia that I will make due to this project study.

Implications, Applications, and Directions for Future Research

As schools of nursing in the United States attempt to meet the future demand of the nursing shortage (IOM, 2011) and clinical sites for experiential learning opportunities shrink (Werth et al., 2014), simulation will become a vital part of nursing programs

(Jeffries, 2015). The problem at the study site, of the educators not being prepared to use simulation as a teaching strategy, prevented students from participating in an experiential learning opportunity. The purpose of this study was to investigate the perceptions of nursing faculty, deans, and directors on the implementation of HFS across the nursing curriculum. The findings from this study addressed the research questions and helped achieve the purpose of the study.

Participant faculty and deans indicated that a major barrier to implementing simulation was a lack of training. The 3-day professional development program I developed in response addressed the prerequisites for the individual, the organization, and the academic community for implementing simulation throughout the nursing curriculum. This study is one of the few qualitative studies to investigate faculty perceptions of facilitators and barriers to simulation. The findings from this study strengthened the results of previous studies regarding the barriers to simulation and the need for training in simulation instruction. However, using a mixed-methods study may have enriched the transferability and external validity of the results by offsetting the weaknesses of single method studies.

As there is no consistency in the types of professional development programs currently available on the topic, further research is needed to assess the outcomes of the training program. Research is also needed to determine the best way to evaluate faculty on the implementation of best practices in simulation. It is through research that people can increase their knowledge and understanding of a topic. Continued research can help evaluate the current methods and advance practice in the field of nursing.

Conclusion

In this final section, I discussed my personal and professional reflections about the scholarly journey. Throughout my doctoral study and continued immersion in simulation pedagogy, I was able to identify gaps in the literature and gaps in practice. The results from this project study indicated that a lack of training for nursing educators was a barrier to applying simulation. Preparing and supporting nurse educators for using HFS is essential to their role and to promote student learning outcomes. This information led me to develop a 3-day faculty development project. The strengths of the project include a discussion of the standards of INACSL, the NCSBN recommendations, the Arizona advisory opinion, the standards of SSH, and the experiential nature of the program underpinned by Kolb's ELT. There are limitations to every project, but I believe that the need to prepare faculty outweighs the limitations of this project. Alternate methods to researching the problem were also discussed in this section and included using a descriptive survey or a mixed method approach. I also identified other related problems and determined that another plausible approach to the problem would have been a policy recommendation.

As more schools of nursing discover the need for HFS, there will be a need for teachers equipped with the skills to facilitate simulation. The results of this study were timely and needed. Of the 29 nursing schools in the state of Arizona, nine schools (31%) were represented in the study and a prioritized theme was *the need for faculty development* in simulation pedagogy. Implementing the project will allow faculty the opportunity to learn and apply what is learned to practice.

References

Abell, C., & Keaster, R. (2012). Change and administrative barriers: Nurse educators' perspective concerning the use of simulators. *Nursing Education Perspectives, 33*(6), 395-398. doi:10.5480/1536-5026-33.6.395

Acton, R., Chipman, J., Lunden, M., & Schmitz, C. (2015). Unanticipated teaching demands rise with simulation training: Strategies for managing faculty workload. *Journal of Surgical Education, 72*(3), 522-529. doi:10.1016/j.surg.2014.10.013

Adamson, K. (2010). Integrating human patient simulation into associate degree nursing curriculum: Faculty experiences, barriers, and facilitators. *Clinical Simulation in Nursing, 6*(3), e75-e81. doi:10.1016/j.ecsns.2009.06.002

Aldridge, M. (2016). How can nurse educators perform patient simulation efficiently? *Teaching and Learning in Nursing, 11*(1), 8-14. doi:10.1016/j.teln.2015.09.001

Alexander, M., Durham, C., Hooper, J., Jeffries, P., Goldman, N., Kardong-Edgren, S.,...Tillman, C. (2015). NCSBN simulation guidelines for prelicensure nursing programs. *Journal of Nursing Regulation, 6*(3), 39-42. Retrieved from journaloifnursingregulation.com

Al-Ghareeb, A., & Cooper, S. (2016). Barriers and enablers to the use of high-fidelity patient simulation manikins in nurse education: An integrative review. *Nurse Education Today, 36*, 281-286. doi:10.1016/j.nedt.2015.08.005

Anderson, M., Bond, M., Holmes, T., & Cason, C. (2012). Acquisition of simulation skills: Survey of users. *Clinical Simulation in Nursing, 8*(2), e59-e65. doi:10.1016/j.ecns.2010.07.002

Ard, N., & Valiga, T. M. (2012). *Clinical nursing education: Current reflections*. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Arizona State Board of Nursing. (2014). *Summary and analysis of annual reports from nursing programs.* Retrieved from https://www.azbn.gov/education/consumer-information

Arizona State Board of Nursing. (2015). *Education advisory committee*. *Use of simulation in approved RN/LPN programs.* Retrieved from https://www.azbn.gov/educationcommittee

Arizona State Board of Nursing. (2017). *Rules of the state board of nursing*. Retrieved from https://www.azbn.gov

Arthur, C., Levett-Jones, T., & Kable, A. (2013). Quality indicators for the design and implementation of simulation experiences: A Delphi study. *Nurse Education Today, 33*(11), 1357-1361. doi:10.1016/j.nedt.2012.07.012

Bayar, A. (2014). The components of effective professional development activities in terms of teachers' perspective. *International Online Journal of Education Sciences, 6*(2), 319-327. doi:10.15345/iojes.2014.02.006

Beard, C., & Wilson, P. (2002). *The power of experiential learning: A handbook for trainers and educators.* Herndon, VA: Stylus Publishing.

Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation.* Washington, DC: Carnegie Foundation.

Berkow, S., Virkstis, K., Stewart, J., & Conway, L. (2009). Assessing new graduate nurse performance. *Nurse Educator, 34*(1), 17-22. doi:10.1097/01.NNE.0000343405.90362.15

Boese, T., Cato, M., Gonzalez, L., Jones, A., Kennedy, K., Reese, C.,...Borum, J. (2013). Standards of best practice: Simulation standards V: Facilitator. *Clinical Simulation in Nursing, 9*(6S), S22-S25. doi:10.1016/j.ecns.2013.04.010.

Bogdan, R., & Biklen, S. (2007). *Qualitative research for education: An introduction to theories and methods.* Boston, MA: Pearson.

Boyer, E. L. (2016). *Scholarship reconsidered: Priorities of the professoriate*. San Francisco, CA: Jossey-Bass.

Bray, B., Schwartz, C., Weeks, D., & Kardong-Edgren, S. (2009). Human patient simulation technology: Perceptions from a multidisciplinary sample of health care educators. *Clinical Simulation in Nursing, 5*(4), e145-e150. doi:10.1016/j.ecns.2009.02.002

Buchanan, T., Sainter, P., & Saunders, G. (2013). Factors affecting faculty use of learning technologies: Implications for models of technology adoption. *Journal of Computing in Higher Education, 25*(1), 1-11. doi:10.1017/s12528-013-9066-6

Caputi, L. (2010). *Teaching nursing: The art and science, Vol.* (2nd ed.). Glen Ellyn, IL: College of DuPage Press.

Chen, W., Kelley, B., & Haggar, F. (2013). Assessing faculty development programs: Outcome-based evaluation. *Journal on Centers for Teaching and Learning, 5*, 107-119. Retrieved from http://jctl.miamioh.edu/fetch.php?id=35

Cheng, A., Grant, V., Dieckmann, P., Arora, S., Robinson, T., & Eppich, W. (2015). Faculty development for simulation programs: Five issues for the future of debriefing training. *Society for Simulation in Healthcare, 10*(4), 217-222. doi:10.1097/sih.00000000000090

Cope, D. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum, 41*(1), 89-91. doi:10.1188/14.ONF.89-91

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles, CA: Sage.

Creswell, J. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Boston, MA: Pearson.

Creswell, J. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Los Angeles, CA: Sage.

Cunningham, J., & Hillier, E. (2013). Informal learning in the workplace: Key activities and processes. *Emerald Insight, 55*(1), 37-51. doi:10.1108/00400911311294960

Davis, A., Kimble, L., & Gunby, S. (2013). Nursing faculty use of high-fidelity human patient simulation in undergraduate nursing education: A mixed-methods study. *Journal of Nursing Education, 53*(3), 142-150. doi:10.392//01-484834-20140219-02

Dieckmann, P., Molin-Friis, S., Lippert, A., & Ostergaard, D. (2012). Goals, success factors, and barriers for simulation-based learning: A qualitative interview study in health care. *Simulation & Gaming, 463*(5), 627-647. doi:10.1177/104687811234396949

Dowie, I., & Phillips, C. (2011). Supporting the lecturer to deliver high-fidelity simulation. *Nursing Standard, 25*(49), 35-40. doi:10.7748/ns.25.49.35.s52

Dreifuerst, K. (2015). Getting started with debriefing for meaningful learning. *Clinical Simulation in Nursing, 11*(5), 268-275. doi:10.1016/j.ecns.2015.01.006

Duvall, J. (2012). *Motivation and technological readiness in the use of high-fidelity simulation: A descriptive comparative study of nurse educators*. Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3550035)

Facione, N., & Facione, P. (2008). Critical thinking and clinical judgment. *Critical thinking and clinical reasoning in the health sciences: A teaching anthology.* Hermosa Beach, CA: Insight Assessment.

Faz, R., Van Sell, S., & Sheriff, S. (2014). Simulation teaching: Developing instructor confidence. *International Journal of Nursing, 1*(2), 49-63. doi:10.15640/ijn.v1n2a

Fountain, R. (2011). *Nurse educators' consensus opinion of high fidelity patient simulation* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (UMI No. 3464574)

Galati, M., & Williams, R. (2013). Business planning considerations for a healthcare simulation center. In A. Levine, S. DeMaria, A. Schwartz, & A. Sim (Eds.), *The comprehensive textbook of healthcare simulation* (pp. 625-632). New York, NY: Springer Science. doi:10.1007/978-1-4614-5993-4_46

Gardner, A., Lachapelle, K., Pozner, C., Sullivan, M., Sutherland, D., Scott, D., ...Sachdeva, A. (2015). Expanding simulation-based education through

institution-wide initiatives: A blueprint for success. *Surgery, 158*(5), 1403-1407. doi:10.1016/j.surg.2015.03.040

Gates, M., Parr, M., & Hughen, J. (2012). Enhancing nursing knowledge using high-fidelity simulation. *Journal of Nursing Education, 51*(1), 9-15. doi:10.3928/01484834-20111116-01

Gore, T., & Schuessler, J. B. (2013). Simulation policy development: Lessons learned. *Clinical Simulation in Nursing, 9*(8), e319-e322. doi:10.1016/j.ecns.2012.04.005

Groom, J., Henderson, D., & Sittner, B. (2014). NLN/Jeffries simulation framework state of the science project: Simulation design characteristics. *Clinical Simulation in Nursing, 10*(7), 337-344. doi:10.1016.j.ecns.2013.02.004

Guimond, M., Sole, M., & Salas, E. (2011) Getting reading for simulation-based training: A checklist for nurse educators. *Nursing Education Perspectives, 32*(3), 179-185. doi:10.5480/1536-5026-32.3.179

Haines, S., & Persky, A. (2014). Faculty development: Who, what, why, where, when, and how? *American Journal of Pharmaceutical Education, 78*(5), 1-2. doi:10.5688/ajpe78597

Hallmark, B. (2015). Faculty development in simulation education. *Nursing Clinics, 50*(2), 389-397. doi:10.1016/j.cnur.2015.03.002

Halstead, J. (2013). *Nurse educator competencies: Creating an evidence-based practice for nurse educator* (2nd ed.). New York, NY: National League for Nursing.

Harder, N., Ross, C., & Paul, P. (2013). Instructor comfort level in high-fidelity simulation. *Nurse Education Today, 33*(9), 1242-1245. doi:10.1016/j.nedt.2012.09.003

Hayden, J. (2010). Use of simulation in nursing education: National survey results. *Journal of Nursing Regulation, 1*(3), 52-57. Retrieved from www.journalofnursingregulation.com

Hayden, J., Smiley, R., Alexander, M., Kardong-Edgren, S., & Jeffries, P. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 5*(2), S1-S64. Retrieved from www.journalofnursingregulation.com

Hollema, C. (2015). Faculty development in high fidelity clinical simulation. *International Journal of Nursing Didactics, 5*(9), 1-5. doi:10.15520/ijnd.2015.vol5.iss9.110.01-05

Howard, V., Englert, N., Kameg, K., & Perozzi, K. (2011). Integration of simulation across the undergraduate curriculum: student and faculty perspectives. *Clinical Simulation in Nursing, 7*(1), e1-e10. doi:10.1016/j.ecns.2009.10.004

Institute of Medicine. (2000). *To err is human: Building a safer health system.* Washington, DC: The National Academies Press. Retrieved from www.nap.edu/

Institute of Medicine. (2011). *The Future of Nursing: Leading Change, Advancing Health*. The National Academies Press. Retrieved from www.nationalacademies.org

International Nursing Association of Clinical Simulation and Learning Standards Committee. (2016). INACSL Standards of best practice: Simulation facilitation. *Clinical Simulation in Nursing, 12*(S), S16-S20. doi:10.1016/j.ecns.2016.09.007

Jansen, D., Johnson, N., Larson, G., Berry, C., & Hanson-Brenner, G. (2009). Nursing faculty perceptions of obstacles to utilizing manikin-based simulations and proposed solutions. *Clinical Simulation in Nursing, 5*(1), e9-e16. doi:10.11016/j.ecns.2008.09.004

Jeffries, P. (2005). A framework for designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nursing Education Perspectives, 26*(2), 96-103.

Jeffries, P. (2009). Dreams for the future for clinical simulation. *Nursing Education Perspectives*, *30*(2), 71. Retrieved from EBSCO.com

Jeffries, P. (2012). *Simulation in Nursing Education: From conceptualization to evaluation* (2nd ed.). New York, NY: National League for Nursing.

Jeffries, P. R. (Ed.). (2014). *Clinical simulations in nursing education: Advance concepts, trends, and opportunities.* Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Jeffries, P. (2015). The good news-simulation works, so now what? *Journal of Nursing Education, 54*(11), 603-604. doi:10.3928/01484834-20151016-10

Jeffries, P., Battin, J., Franklin, M., Savage, R., Yowler, H., Sims, C.,...Werskey, K. (2013). Creating a professional development plan for a simulation consortium. *Clinical Simulation in Nursing, 9*(6), e183-e189. doi:10.1016/j.ecns.2012.02.003

Jeffries, P., Dreifuerst, K., Kardong-Edgren, S., & Hayden, J. (2015). Faculty development when initiating simulation programs: Lessons learned from the national simulation study. *Journal of Nursing Regulation, 5*(4), 17-23. Retrieved from journalofnursingregulation.com

Jones, A., Fahrenwald, N., & Ficek, A. (2013). Testing Ajzen's theory of planned behavior for faculty simulation development. *Clinical Simulation in Nursing, 9*(6), e213-e218. doi:10.1016/j.ecns.2012.01.005

Jones, A., Reese, C., & Shelton, D. (2014). NLN/Jeffries Simulation Framework state of the science project: The teacher construct. *Clinical Simulation in Nursing, 10*(7), 335-382. doi:10.1016/j.ecns.2013.10.008

Kardong-Edgren, S. (2015). Initial thoughts after the NCSBN national simulation study. *Clinical Simulation in Nursing, 11*(4), 201-202. doi:10.1016/j.ecns.2015.02.006

Kardong-Edgren, S., Willhaus, J., Bennett, D., & Hayden, J. (2012). Results of the National Council of State Boards of Nursing national simulation survey: Part II. *Clinical Simulation in Nursing, 8*(4), e117-e123. doi:10.1016/j.ecns.2012.01.003

Kelly, S. (2014). *Evaluation methods used in simulation: A survey of faculty and student perceptions in an undergraduate nursing program.* (Doctoral dissertation) Retrieved from pitt.edu

Kern, D. (2016). A six-step approach to curriculum development. In P. Thomas, D. Kern, M., Hughes, & B. Chen, *Curriculum development for medical education* (3rd ed.). (pp. 5-9). Baltimore, MD: John Hopkins University Press

Kim, S., Park, C., & O'Rourke, J. (2017). Effectiveness of online simulation training: Measuring faculty knowledge, perceptions, and intention to adopt. *Nurse Education Today, 51,* 102-107. Doi:10.1016/j.nedt.2016.12.022

Kinnear, J., Smith, B., Akram, M., Wilson, N., & Simpson, E. (2015). Using expert consensus to develop a simulation course for faculty members. *The Clinical Teacher, 12*(1), 27-31. doi:10.1111/tct.12233

Kirkpatrick, J., & Kirkpatrick, W. (2016). *Four levels of training evaluatio*n. Alexandria, VA: ATD Press.

Kolb, A., & Kolb, D. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education, 4*(2), 193-212. doi:10.5465/AMLE.2005.17268566

LaFond, C. M., & Van Hulle-Vincent, C. (2013). A critique of the National League for Nursing/Jeffries simulation framework. *Journal of Advanced Nursing, 69*(2), 465-480. doi:10.1111/j.1365-2648.2012.06048.x

Lancaster, J., Stein, S., MacLean, L., Van Amburgh, J., & Persky, A. (2014). Faculty development program models to advance teaching and learning within health science programs. *American Journal of Pharmaceutical Education, 78*(5), 99. doi:10.5688ajpe78599

Larsen, T., & Schultz, M. (2014). Transforming simulation practices: A quest for return on expectations. *Clinical Simulation in Nursing, 10*(12), 626-629. doi:10.1016/j.ecns.2014.09.004

Lazzara, E., Benishek, L., Dietz, A., Sala, E., & Adriansen, D. (2014). Eight critical factors in creating and implementing a successful simulation program. *Joint Commission Journal on Quality and Patient Safety, 40*(1), 21-29. Retrieved from http://www.jointcommissionjournal.com/article/S1553-7250(14)40003-5/abstract

Leighton, K. (2015). Simulation in nursing. In A. Levine, S. DeMaria, A. Schwartz & A. Sim (Eds.). *The comprehensive textbook of healthcare simulation* (pp. 425-436). New York, NY: Springer Science. doi:10.1007/978-1-4614-5993-4_46.

Lemoine, J., Chauvin, S., Broussard, L., & Oberleitner, M. (2015). Statewide interprofessional faculty development in simulation-based education for health professions. *Clinical Simulation in Nursing, 11*(3), 153-162. doi:10.1016/j.ecns.2014.12.002

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage

Lodico, M., Spaulding, D., & Voegtle, K. (2010). *Methods in educational research: From theory to practice*. San Francisco, CA: Jossey-Bass

McGinty, D. (2013). Clinical facility utilization by Arizona nursing programs. *Arizona State Board of Nursing*. Retrieved from https://www.azbngov/documents/education/nursing%20program.

McNeill, J., Parker, R., Nadeau, J., Pelayo, L., & Cook, J. (2012). Developing nurse educator competency in the pedagogy of simulation. *Journal of Nursing Education, 51*(12), 685-691. doi:10.3928/01484834-20121030-01

McNeils, A., Foncier, T., McDonald, J., & Ironside, P. (2011). Optimizing prelicensure students' learning in clinical settings: Addressing the lack of clinical sites. *Nursing Education Perspectives, 32*(1), 64-65. Retrieved from http://nln.org

Meakim, C., Boese, T., Decker, S., Franklin, A., Gloe, D., Lioce, L.,...Borum, J. (2013). Standards of bet practice: Simulation standard I: Terminology. *Clinical Simulation in Nursing, 9*(6S), S3-S11. doi:10.1016/j.ecns.2013.04.001

Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Miller, A., & Bull, R. (2013). Do you want to play? Factors influencing nurse academics' adoption of simulation in their teaching practices. *Nurse Education Today, 33*(3), 241-246. doi:10.1016/j.nedt.2011.11.001

National Council of State Boards of Nursing. (2005). Clinical instruction in prelicensure nursing programs. Retrieved from https://www.ncsbn.org/6545.htm

National Council of State Boards of Nursing. (2009). Report of findings from the effect of high-fidelity simulation on Nursing students' knowledge and performance: A pilot study. *NCSBN Research Brief, 40*. Retrieved from NCBSN.org

National Council of State Boards of Nursing. (2016). NCSBN Simulation Guidelines for Prelicensure Nursing Education Programs. Retrieved from https://www.ncsbn.org/9535.htm

National League for Nursing. (2014). Simulation Innovation Resource Center (NLN-SIRC). Retrieved from http://sirc.nln.org/mod/glossary

National League for Nursing. (2015). *A Vision for teaching with simulation*. Retrieved from http://www.nln.org?docs/default-source/about/nln-vision-seriers

Nehring, W., Wexler, T., Hughes, F., & Greenwell, A. (2013). Faculty development for the use of high-fidelity patient simulation. *International Journal of Health Sciences Education, 1*(1), 1-34. Available from http://dc.etsu.edu/ijhse/bol1/iss1/4

Neil, J. (2009). Simulation in nursing education. *Perioperative Nursing Clinics, 4*(2), 97-112. doi:10.1016/j.cpen.2009.02.002

Neil, M., & Wotton, K. (2011). High-fidelity simulation debriefing in nursing education: A literature review. *Clinical Simulation in Nursing, 7*(5), e161-e168. doi:10.1016/j.ecns.2011.02.001

Ng, G., & Ruppel, H. (2016). Nursing simulation fellowships: An innovative approach for developing simulation leaders. *Clinical Simulation in Nursing, 12*(2), 62-68. doi:10.1016/j.ecns.2015.11.005

Nguyen, D., Zierler, B., & Nguyen, H. (2011). A survey of nursing faculty needs for training in use of new technologies for education and practice. *Journal of Nursing Education, 50*(4), 181-189. doi:10.3928/148434-201130-06

Nickerson, M., Morrison, B., & Pollard, M. (2011). Simulation in nursing staff development. *Journal for Nurses in Staff Development, 27*(2), 81-89. doi:10.1097/NND.0b013e3181a68abd

Nordquist, J., & Sundberg, K. (2015). Institutional needs and faculty development for simulation. *Best Practice & Research Clinical Anaesthesiology, 29*(1), 13-20. doi:10.1016/j.bpa.2015.02.001

Oermann, M. (2015). *Teaching in Nursing and Role of the Educator: The complete guide to best practice in teaching, evaluation and curriculum, development.* New York, NY: Springer Publishing Company.

Onwuegbuzie, A., & Leech, N. (2007). A call for qualitative power analyses. *Quality & Quantity, 41*(1), 105-121. doi:10.1007/s11135-005-1098-1

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533-544. doi:10.1007/s10488-013-0528-y

Parsh, B. (2010). Characteristics of effective simulated clinical experience instructors: Interviews with undergraduate nursing students. *Journal of Nursing Education, 49*(10), 569-572. doi:10.32928/0148434-20100730-04

Patton, M. (2003). Qualitative evaluation checklist. *Evaluation Checklists Project.* Retrieved from dmeforpeace.org

Peterson, D., Watts, P., Epps, C., & White, M. (2017). Simulation faculty development: A tiered approach. *Society for Simulation in Healthcare, 00*(00), 1-6. doi:10.1097/sih.0000000000000225

Poore, J. A., Cullen, D. L., & Schaar, G. L. (2014). Simulation-based interprofessional education guided by Kolb's Experiential Learning Theory. *Clinical Simulation in Nursing, 10*(5), e241-e247. doi:10.1016/j.ecns.2014.01.004

Powers, G. (2014). Associate degree nurse educators in New York State report the value of utilizing clinical simulation as a teaching strategy. *Teaching and Learning in Nursing, 9*(4), 175-180. doi:10.1016/j.teln.2014.06.002

Richardson, K., & Claman, F. (2014). High-fidelity simulation in nursing education: A change in clinical practice. *Nursing Education Perspectives, 35*(2), 125-127. Retrieved from http://nln.org

Riley, R. (2016).*Manual of simulation in healthcare* (2nd ed.). Oxford, England: Oxford Press.

Rizzolo, M., Kardong-Edgren, S., Oermann, M., & Jeffries, P. (2015). The National League for Nursing project to explore the use of simulation for high-stakes assessment: Process, outcomes, and recommendations. *Nurse Educator Perspectives*, *36*(5), 299-303. doi:10.5480/15-1639

Roh, Y. S., Kim, M. K., & Tangkawanich, T. (2016). Survey of outcomes in a faculty development program on simulation pedagogy. *Nursing & Health Sciences, 18*(2), 1-6. doi:10.1111/nhs.12254

Rutherford-Hemming, T., Lioce, L., Kardong-Edgren, S., Jeffries, P., & Sittner, B. (2016). After the National Council of State Boards of Nursing simulation study-Recommendations and next steps. *Clinical Simulation in Nursing, 12*(1), 2-7. doi:10.1016/j.ecns.2015.10.010

Saldãna, J. (2013). *The coding manual for qualitative researchers.* Thousand Oaks, CA: Sage.

Scheese, C. (2015). Operations and management of environment, personnel, and nonpersonnel resources. In L. Wilson & R. Wittman-Price (Eds.), *Certified healthcare simulation educator (CHSE) exam* (pp. 269-292). New York, NY: Springer.

Schlairet, M. (2011). Simulation in an undergraduate nursing curriculum: Implementation and impact evaluation. *Journal of Nursing Education, 50*(10), 561-568. doi:10.3928/01484834-20110630-04

Sole, M., Guimond, M., & Amidei, C. (2013). An analysis of simulation resources, needs, and plans in Florida. *Clinical Simulation in Nursing, 9*(7), e265-e271. doi:10.1016/j.ecns.2012.03.003

Stake, R. (2010). *Qualitative research: Studying how things work.* New York, NY: Guilford Press.

Swanson, E., Nicholson, A., Boese, T., Cram, E., Stineman, A., & Tew, K. (2011). Comparison of selected teaching strategies: Incorporating simulation and student outcomes. *Clinical Simulation in Nursing, 7*(3), e81-e90. doi:10.1016/j.ecns.2009.12.001

Taibi, D., & Kardong-Edgren, S. (2014). Health care educator training in simulation: A Survey and web site development. *Clinical Simulation in Nursing, 10*(1), e47-e52. doi:10.1016/j.ecns.2013.05.013

Tanner, C. (2006). Thinking like a nurse: A research model of clinical judgment. *Journal of Nursing Education, 45*(6), 204-211. Retrieved from www.ebscohost.com

Taplay, K., Jack, S., Baxter, P., Eva, K., & Martin, L. (2014). Negotiating, navigating, and networking: Three strategies used by nursing leaders to shape the adoption and incorporation of simulation into nursing curricula-A grounded theory study. *International Scholarly Research Notices 2014,* 1-7. doi:10.1155/2014/854785

Taplay, K., Jack, S., Baxter, P., Eva, K., & Martin, L. (2015). The process of adopting and incorporating simulation into undergraduate nursing curricula: A grounded theory study. *Journal of Professional Nursing, 31*(1), 26-36. doi:10.1016/j.profnurs.2014.05.005

Thomas, C., Sievers, L., Kellgren, M., Manning, S., Rojas, D., & Gamblian, V. (2015). Developing a theory-based simulation educator resource. *Nursing Education Perspectives, 36*(5), 340-342. doi:10.5480/15-1673

Topping, A., Boje, R., Rekola, L., Hartvigsen, T., Prescott, S., Bland, A.,...Hannula, L. (2015). Towards identifying nurse educator competencies required for simulation-based learning: A systemized rapid review and synthesis. *Nurse Education Today, 35*(11), 1108-1113. doi:10.1016/j.nedt.2015.06.003

Waldner, M., & Olson, J. (2007). Taking the patient to the classroom: Applying theoretical frameworks to simulation in nursing education. *International Journal of Nursing Education Scholarship, 4*(1), 1-14. Retrieved from http://www.bepress.com/ijnes/vol4/iss1/art18

Watson, R. (2015). Quantitative research. *Nursing Standard, 29*(31), 44. doi:http://dx.doi.org.ezp.waldenulibrary.org/10.7748/ns.29.31.44.e8681

Waxman, K. (2016). Sustaining a statewide simulation alliance. *Clinical Simulation in Nursing*, *12*(10), 448-452. doi:10.1016/j.ecns.2016.07.001

Werth, J., Fidazzo, M., & Schroeder, S. (2014). The existing reality. *Arizona Nurse*, *67*(1), 4-5. Retrieved from http://www.nursingald.com/uploads/publication/pdf/972/AZ2_14.pdf

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal Of Education*, *48*(2), 311-325. doi:10.1111/ejed.12014

Yin, R. K. (2011). *Applications of case study research*. Los Angeles, CA: Sage.

Yin, R. (2014). *Case study research: Design and methods*. Los Angeles, CA: Sage.

Zigmont, J., Kappus, L., & Sudikoff, S. (2011). Theoretical foundations of learning through simulation. *Seminars in Perinatology*, *35*(2), 47-51. doi:10.1053/j.semperi.2011.01.002

Appendix A: A Professional Development Project

A 3-Day Professional Development Program

High-Fidelity Simulation: Bootcamp for Educators

Sherry Ray, MSN, RN

December 2017

Program Overview

Program Description

This professional development program will take place over three consecutive days. Nursing educators and deans will learn how to apply the INACSL Standards of Best Practice: Simulation[SM]. Attendees will also learn to construct a scenario using the Jeffries/NLN Framework during day two. On the third day, attendees will participate in basic operation of a simulator, role-play in a simulation scenario and practice debriefing techniques. Included in this program are operational considerations for implementing a simulation program. The target audience is for nursing educators and deans or directors that are using simulation in their nursing programs.

Program Outcomes

The purpose of the three-day professional development workshop is to provide training for all nursing educators that will be required to use HFS. This 3-day program will prepare nurse educators and deans for implementing simulation utilizing the INACSL Standards of Best Practice: Simulation[SM] and provide the necessary current knowledge and skills to implement simulation as a teaching strategy. At the end of this program: (1) faculty will be able to demonstrate that they know how to facilitate simulation using best practice and (2) leaders will develop operational strategies to support best practice in simulation.

Program Learning Goals

- To prepare nurse educators with the knowledge, skills, and mindset to effectively implement and facilitate HFS within a prelicensure nursing program.

- To improve the performance of those currently using HFS to ensure optimal student learning outcomes.
- To inform and prepare nursing leaders to advocate for HFS in prelicensure nursing programs.
- To prepare nursing leaders with the knowledge of simulation program needs and operations.
- To improve student learning outcomes through the use of HFS.

Program Agenda

Day 1

0830-0900: Check-in and Registration

0900-1000: Welcome and Introductions

1000-1100: PowerPoint Presentation of NCSBN Study Results, Benefits, & Terminology

1100-1110: Break

1100-1200: PowerPoint Presentation of Learning Theories

1200-1300: Lunch provided

1300-1400: PowerPoint Presentation of INACSL Standards of Best Practice: Simulation

1400-1415: Break

1415-1530: PowerPoint Presentation of INACSL Standards of Best Practice: Simulation

1530-1545: Break

1545-1700: Questions. Wrap up

Day 2

0830-0900: Check-in and Registration

0900-1000: PowerPoint Presentation of the Components of a Scenario

1000-1200: Break-out session: Creating a Scenario

1200-1300: Lunch provided

1300-1400: Break-out session: Creating a Scenario

1400-1415: Break

1415-1530: PowerPoint Presentation of Debriefing Models

1530-1545: Break

1545-1700: Questions. Wrap up

Day 3

0830-0900: Check-in

0900-0930: PowerPoint Presentation of Arizona Board of Nursing Advisory Opinion

0930-1030: PowerPoint Presentation of Operations and Management of Resources

1030-1045: Break

1045-1200: Introduction to SimMan Basic Operations

1200-1300: Lunch provided

1300-1430: Role-play: Participate in a Simulation Scenario Phase 1

1430-1445: Break

1445-1615: Role-play: Participate in a Simulation Scenario Phase 2

1615-1700: Questions. Wrap up

SIMULATION: BOOTCAMP FOR EDUCATORS

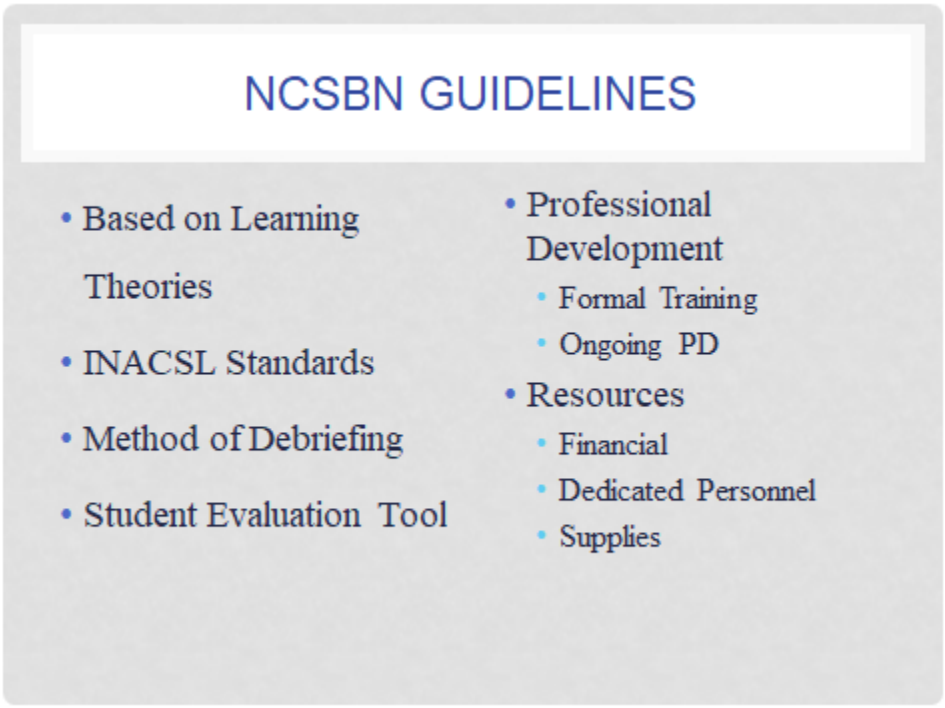
DAY 1

OBJECTIVES

- Describe the Benefits of Simulation
- Discuss Learning Theories that Support Simulation
- Identify the Capabilities of the Various Manikins
- Utilize INACSL Standards of Best Practice: Simulation in Your Simulation Program

NCSBN STUDY RESULTS 2014

- Up to 50% Simulation may be substituted for clinical
- No Statistically Significance Differences:
  - Preceptor Ratings of Clinical Competency
  - Nursing Knowledge
  - NCLEX Pass Rates
- No Statistically Significance Differences in Clinical Competency or Readiness
  - Manager Ratings at 6 Weeks, 3 Months, or 6 Months



The NCSBN guidelines are for prelicensure nursing programs. The simulation program should be based on educational theories associated with simulation.

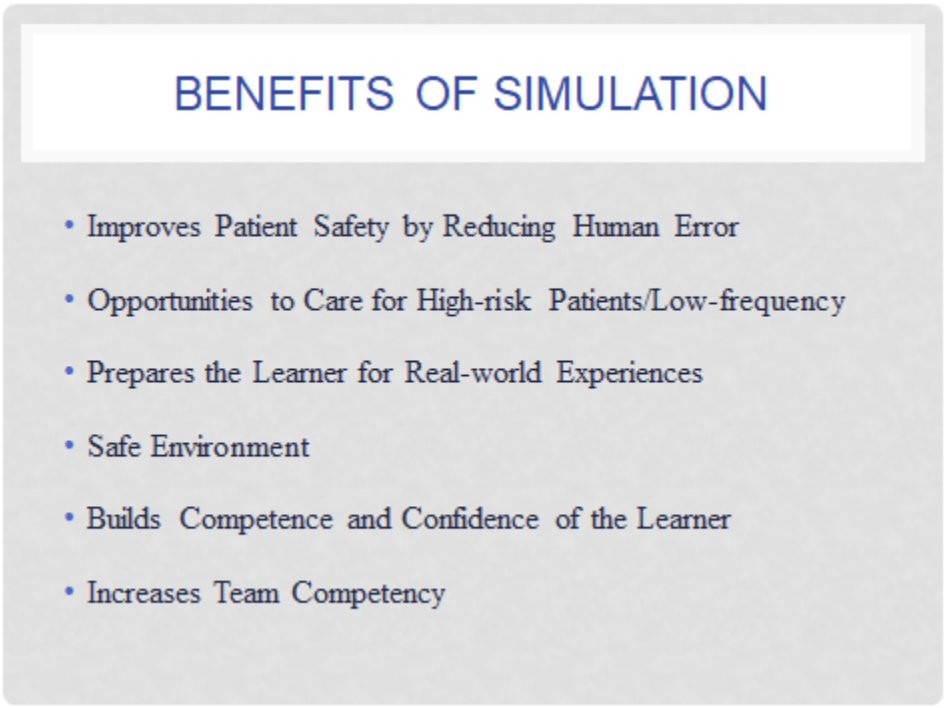
Faculty must follow the INCASL standards of best practice.

Standardized debriefing method that follows a Socratic method.

The tool for evaluating is based on the INACSL standards

Faculty must be prepared and the program must provide a mean for FD in simulation

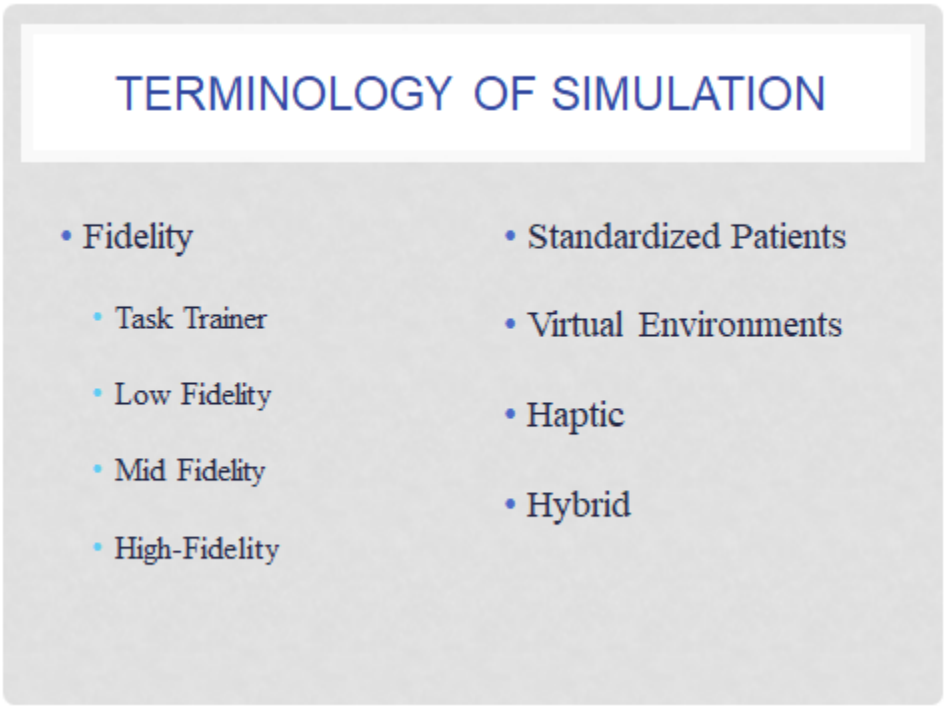
Adequate resources to support the simulation program



Students can be presented with patient scenarios that are high risk for complications, but may not have an opportunity to care for this patient during a hospital rotation. Examples may be emergency situations such as a patient with peritonitis or a chest tube set-up. Simulation is a place where students can improve psychomotor skills, communication, teamwork, and professionalism.

Students can practice clinical reasoning and psychomotor skills in a safe and supportive environment. The student can make, detect, and correct patient errors through reflection and/or guided debriefing

Increases the confidence of the student by allowing the student to feel what it is like to be the nurse where the responsibility lies and decisions must be made. Simulation allows the group of students to function as a team to improve patient outcomes in scenarios such as airway management, resuscitation, or other medical emergencies.



Fidelity refers to the degree that the manikins mimic reality and believability. Fidelity is determined by the environment and tools or resources used

Task trainers are often anatomical models that are used for psychomotor skill practice such as wound care or learning how to start IVs.

A low-fidelity is commonly found in prelicensure nursing programs and is useful for practicing giving a bed bath or making an occupied bed. A low fidelity is not as realistic as a mid- or high-fidelity manikin. These models are static and do not provide much feedback to the learner. Great for simple tasks and skills in new students

A mid-fidelity manikin often has programmable heart and lung sounds, but the chest does not rise and fall as in a high-fidelity manikin.

A high-fidelity manikin such as SimMan is dynamic and attempts to mimic real-life situations. He has pupils that react to light, programmable heart, lung, and bowel sounds and his chest rises and falls with each breath. Useful for teaching complex decision making and critical thinking skills

Standardized patients: live actors that can provide authentic experiences. Should be carefully selected and trained to portray a patient. Especially beneficial for neurology and mental health patients that have manifestations that are difficult or impossible to display using a manikin

Virtual environments are computer simulated environments; often web-based such are V-sim or Real-Life scenarios where the learner may participate alone or join others such as in Second Life

Haptic: Primarily used in schools of medicine or training for surgeons. Haptic feedback creates the sense of touch by applying forces of vibrations or motion through computer technology.

Hybrid: Combining two modalities such as a live patient to assume the voice of the patient and the patient is a manikin.

Theories of learning address the way individuals learn. Having an understanding of learning theories applicable to simulation will influence and guide the manner in which you facilitate simulation from prebriefing to debriefing. Basic knowledge of learning theories will help you to understand the process of learning and the student better.

Behaviorist: People's behaviors are largely shaped by experiences with environmental stimuli. Learning is observed through behavior and positive behaviors are reinforced with positive feedback.

Cognitive: Refers to the cognitive domain. Learning is developmental, information is processed. Cognitive learning focuses on what is going on in the learner's head and is ruled by internal processes rather than external processes. During simulation, the cognitive theory is used to assess the learner's performance compared to intended performance. The goal is to help the student advance to a higher level of learning. We

will have further discussion of this concept during debriefing where the learner is guided through reflection on action.

Constructive Theory: Focus on the ways people construct knowledge. The learner builds knowledge based on previous knowledge and experiences by doing. The learner creates new meanings or mental models to make sense of new experiences.

Social Learning: bridge between behaviorist and cognitive. Learning can occur through observation of others, imitating other or modeling what others do and do not do. Feedback is important to the student. Can also be applicable to the role of the observer.

Adult Learning: Adults bring prior experiences and biases to current learning experiences. Based on Knowles et al. six assumptions that the learners need to know why, what, and how, SDL- they are autonomous, prior experiences- they have resources and mental models, ready to learn-life related, developmental task, orientation to learning- problem centered and contextual, and motivated to learn-intrinsic value and personal payoff.

Experiential Learning: David Kolb. Requires active engagement, involves concrete experience (reality/simulation), abstract conceptualization (thinking about the experience), reflective observation (taking in the experience), and active experimentation (using hands-on experiences to learn), sim offers the opportunity to put theory into practice by doing.

NLN/Jeffries Simulation Framework: This framework was used in the 2014 NCSBN study and can be used to design your own simulations. The components of the framework include the teacher as the facilitator, the student, and educational practice, which includes

active learning and considers diverse learning styles, collaboration, and high expectations. The characteristics of the simulation design include objectives, the level of fidelity, problem solving, and reflection through debriefing.

Using learning theories to utilize best practices is an ongoing challenge

The International Nursing Association for Clinical Simulation and Learning (INACSL) has developed the INACSL Standards of Best Practice: Simulation℠, which were developed to progress the science of simulation, share best practices, and provide evidence based guidelines for implementation and training. The standards are a living document and the most recent standards, the 3rd edition, were published in 2016. The first edition was published in 2010 and the 2nd edition was published in 3013. Adopting the INACSL standards demonstrates a commitment to quality and implementing EBP into

your simulation program to improve healthcare outcomes by complying with these standards.

The needs assessment may be based on information gained from a SWOT analysis, gap analysis, or regulatory bodies to enhance the curriculum, address competencies, promote readiness for clinical and improve quality of patient care.

Objectives- we will go into detail with the next slide, but objectives need to be measurable.

Choose a theoretical or conceptual framework to build simulations. Select the appropriate modality such as VR, In situ, standardized patients, or manikins

The scenario is created to provide context of the experience. We will discuss this in greater detail tomorrow when you will have the opportunity to create a scenario.

Use various types of fidelity to maximize realism for the student.

Fidelity: the physical or environment should strive to replicate the actual environment that would occur in real life.

Conceptual fidelity refers to the scenario: are all elements of the scenario realistic? Are vital signs consistent with the diagnosis?

Psychological fidelity-is the use of an active voice of the patient to allow for a natural conversation along with family member for distractions, time pressure, and the need to prioritize.

We will discuss in detail on the upcoming facilitation slide

Prebriefing sets the stage for the learner. It may include prep work such as medications or a review of psychomotor skills needed during the simulation. If objectives are broad, they may be given to the students during prebrief. If the objectives are specific and may reveal too much of the scenario then do not share with the student. Provide the students with the background about the patient and expectations. During prebrief remind students of the confidentiality policy. In addition, the students should be provided with an orientation to the space, equipment, simulator features, and method of evaluation.

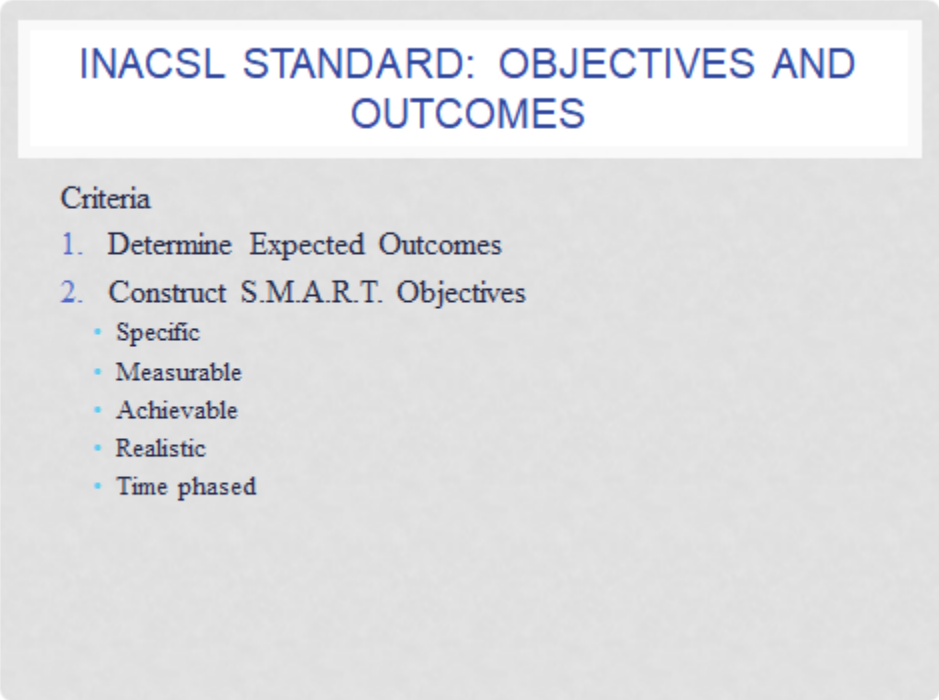
Students are evaluated on their performance during the scenario. Therefore, whoever is evaluating students must be attentive during the simulation. It can be difficult to run the manikin, be the voice of the patient and pay close attention to the three to four students that have different roles during a scenario. It is best to have one person responsible for operating the manikin and one faculty evaluating students. Evaluation can be formative or summative. Students should be provided with the opportunity to evaluate the

experience and the faculty that facilitated the SBE. Two common instruments are the DASH-SV from the Center for Medical Simulation and the Simulation Evaluation Tool-Modified known as the SET-M Tool by CAE. Both tools can be downloaded from the internet and freely used.

Debriefing is where the learning occurs during reflection on action. As such, debriefing will be given much attention during our day 2 of Bootcamp.

Provide materials and resources that will promote the ability of the student to meet the objectives of the scenario. Perhaps concept maps, review of a particular class of medications, a nursing care plan, or course readings et cetera.

Finally, the scenario should be piloted to determine flow or missing pieces or underdeveloped aspects of the scenario.



Determine the expected outcomes for the simulation and/or the program. Outcomes are the overall goals of the program and should be aligned with the mission and vision of the program. Objectives are used assist with the achievement of the outcomes. Each scenario should have between 1 and 4 objectives.

Specific-What exactly are we going to do for whom? Apply the nursing process to a patient experiencing congestive heart failure.

Use Bloom's, address multiple domains of learning, level objective based on participants KSAs

Select one verb and one adjective

Clearly ID target learning domain

Measurable-Can you measure 'it'

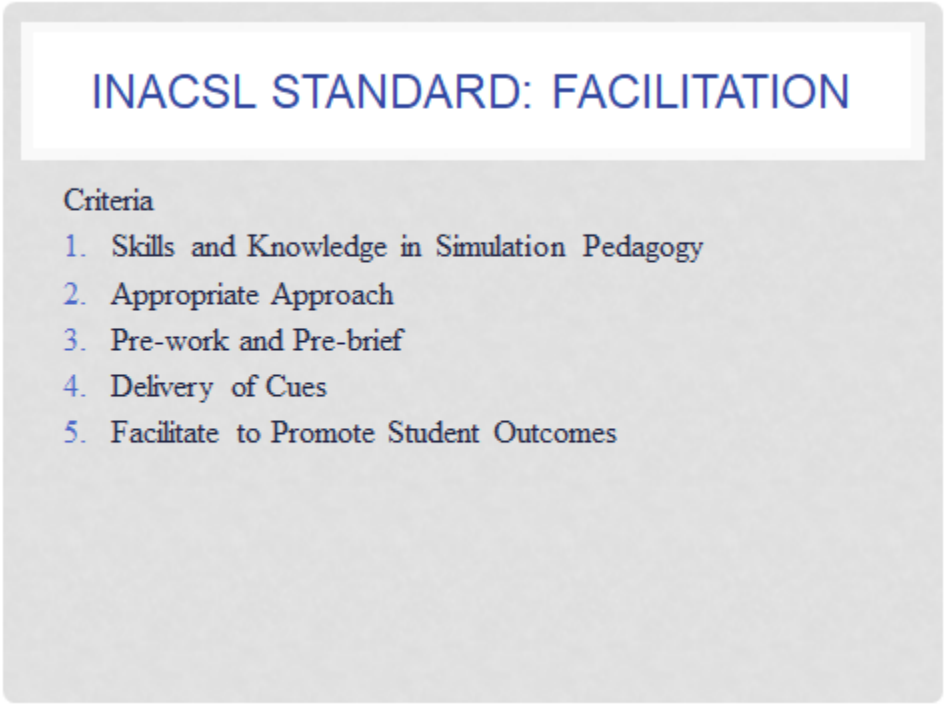
Achievable-Can 'it' be accomplished in the proposed time frame?

Realistic-appropriate KSAs, align with the outcomes, aligned with EBP?

Time-phased objectives- determine a specific time frame to accomplish the objective

Center for Disease Control and Prevention. (2009). Evaluation briefs: Writing SMART objectives. Retrieved from http://www.cdc.gov/healthyyouth/evaluation/pdf/brief3b.pdf

INACSL. (2016). Standards of best practice: Simulation[SM] https://www.inacsl.org



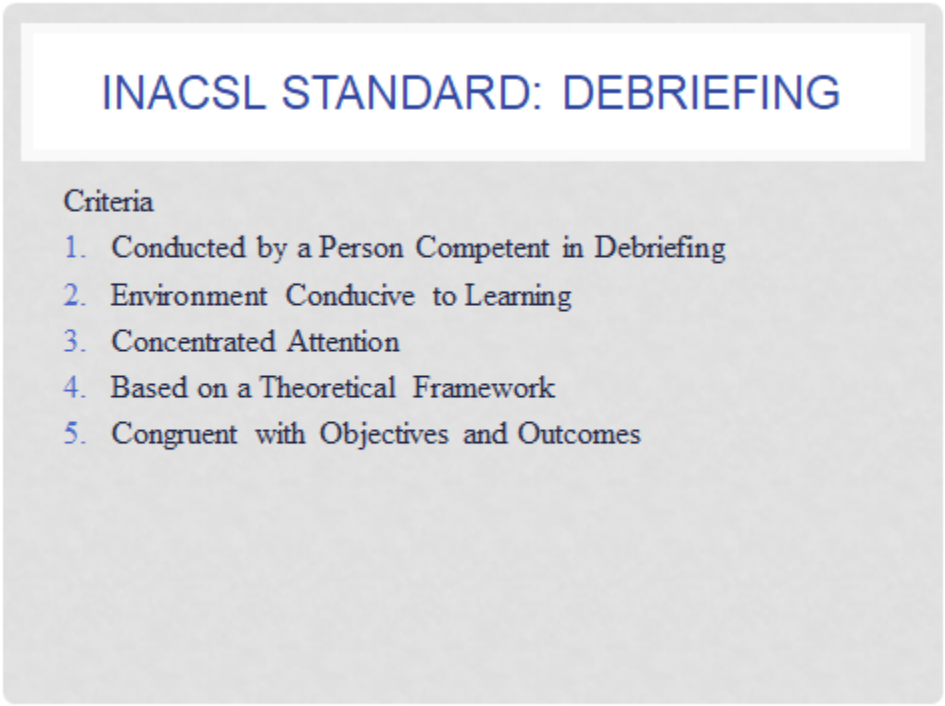
The role of the facilitator is to promote critical thinking and clinical reasoning skills in the students by exploring their thought processes and application of theory.

Formal coursework and ongoing training is required to gain the necessary skills and knowledge in simulation pedagogy.

Appropriate approach based on the needs and skill level of the learner. Allow the scenario to progress with or without interruption depending on the level of the student.

Provide the students with information or prep work such as skills review or patient background to promote competence and confidence in the student. The level of detail revealed depends on the objectives, goals, and purpose of the SBE. Create a safe learning environment, acknowledge that mistakes happen. Provide an orientation to the simulated environment and available equipment. Provide clear description of the assigned roles. Deliver prompts or triggers to draw attention to critical details of the scenario based on the level of the student. Cues should clarify and help redirect the student such as lab results, incoming phone calls from the physician, comments from the patient, or by equipment such as the patient monitor.

Follow INACSL standard for debriefing post SBE.



Debriefing is known as one of the most important aspects of simulation as this is a time when the student reflects on his or her actions during the simulation. The facilitator guiding the debriefing can assist the learner in recognizing their actions and events during the simulation by questioning the student's beliefs or behaviors and help reframe new mental models. It is through questioning that the educators facilitate learning. Debriefing is both an art and skill and takes practice.

Debriefing requires initial training through formal coursework, cont. education, and/or additional work with an experienced mentor. Stay active by participating in SBE.

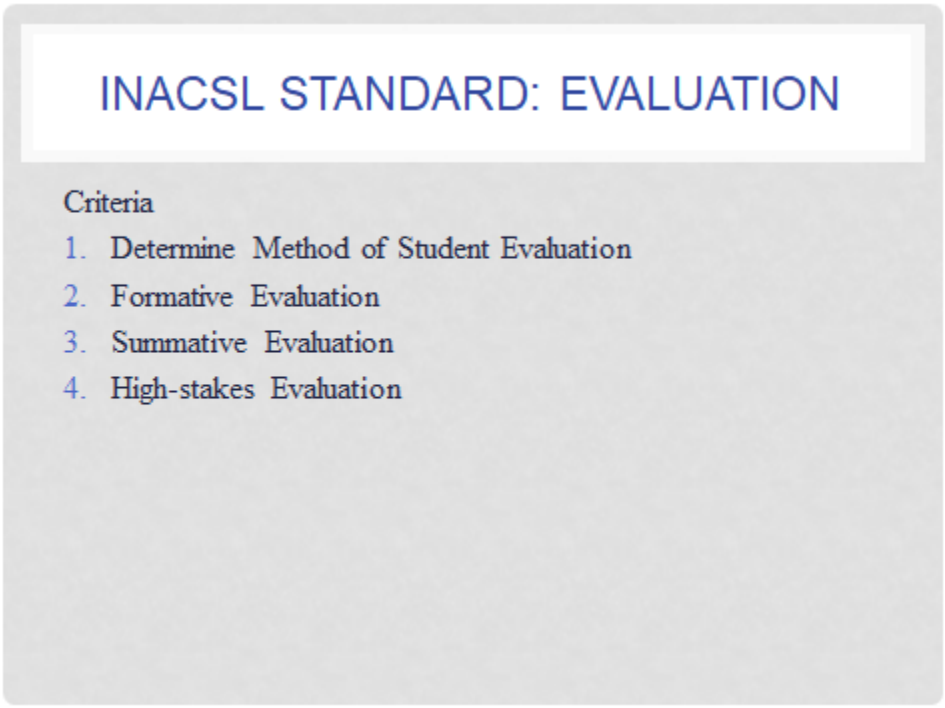
It is critical that the environment in conducive to learning. Students should understand that what happens in sim, stays in sim to support confidentiality, self-analysis, and reflection.

Whoever, is going to facilitate debriefing, must observe and be focused on the students during the simulation experience. You cannot debrief if you did not watch the simulation.

Debriefing should be based on theory and structured.

During debriefing consider the objectives of the scenario and the outcomes. Identify gaps in performance and assist the learner to frame new mental models to promote safe patient care and development as a professional.

During day 3, we will have an in-depth review of some of the currently used debriefing models.



1. The student evaluation should be directed by the objectives and outcomes of the simulation and can be formative or summative.

2. Formative assessment monitors the student's progress toward achieving course outcomes and support clinical competencies. Strive to close the gaps in knowledge and skills.

3. Summative assessment is done at a specific point in time such as end of course or end of program. Students must be oriented to the sim environment and equipment. Use a standard formats such as when to provide cues to the student and the length of the scenario. Use a valid and reliable instrument for evaluating.

4. Completed at a specific point in time. Predetermined parameters are used such as cueing and when to terminate the scenario. The evaluator should be trained and non-

biased and use a comprehensive tool. The student should have had multiple opportunities for participating in simulations. Can be done directly or video recording.

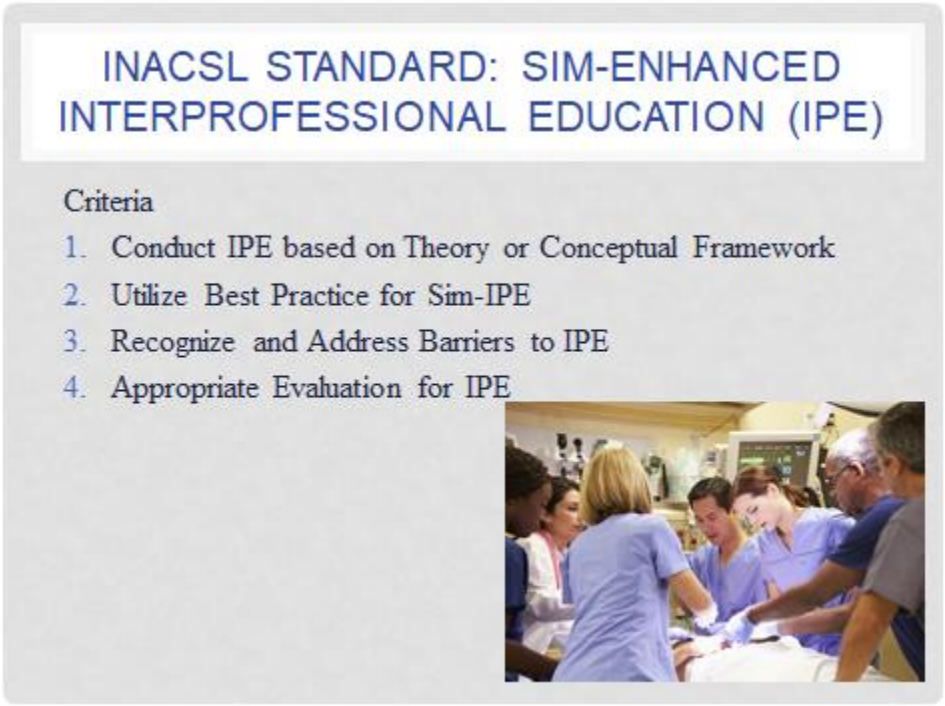
Discuss with your leadership team to determine the evaluation tool that you will incorporate in your program. In your packet you will find copies of the DASH evaluation tool for students and for faculty to complete at the end of a simulation scenario.

1. All involved with simulation are expected to act with integrity and develop a self-awareness of how professional behaviors affect those around us. Foster professional attributes at all times. The facilitator should be organized and prepared for the SBE. Provide a safe, non-judgmental environment. Be calm and compassionate. Be honest and sensitive to cultural differences and ethical issues related to SBE. Take steps to eliminate unprofessional behavior.

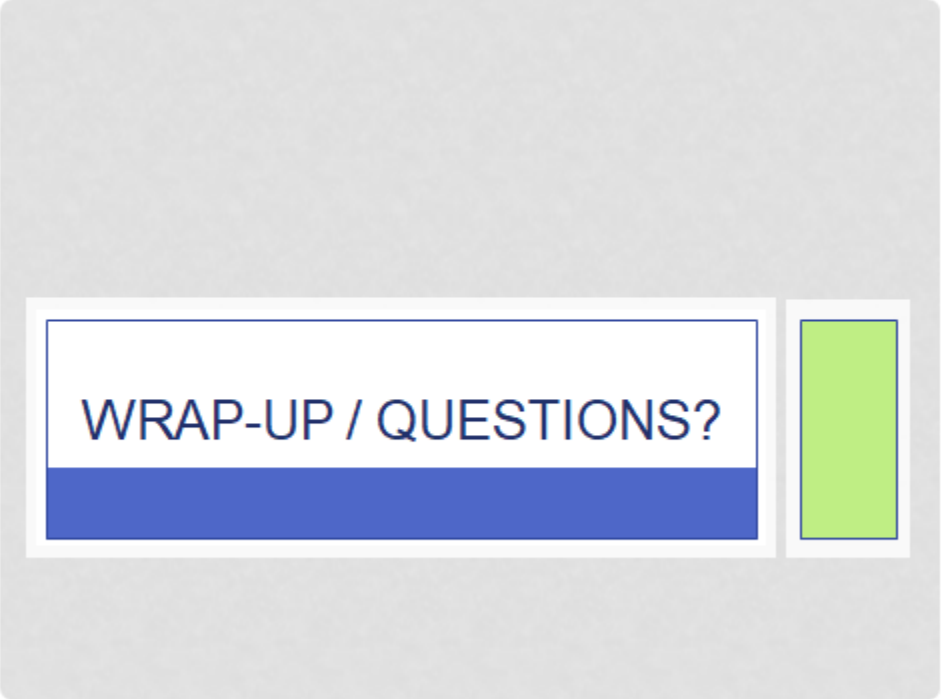
2. Adhere to legal and professional standards of practice and code of ethics. Remain current in practice.

3. Support active learning and reflection. “Provide clear communication and honest feedback in an effective, respectful manner. Maintain professional boundaries to minimize fear of negative consequences to professional role and personal relationships” (p. S31).

4. “Require confidentiality of the performances and scenario content based on policy and procedures” (S31). Establish policies for securing and destroying written documents or video recordings. Preserve the integrity of the scenario content, events or actions that occurred during a simulation, feedback delivered, and all conversation that occurred before, during, and after the SBE based on policy



IPE allows different healthcare professionals to come together in a shared simulation experience to learn about each other's roles & responsibilities, to facilitate effective communication and collaboration, examine values and ethics of the professions, and to develop effective team behaviors. SIM-IPE is challenging and potential barriers need to be addressed. Sim-IPE requires facilitators that are content experts for each healthcare represented in the SBE. Consider the support that will need to be in place to implement Sim-IPE curricula.

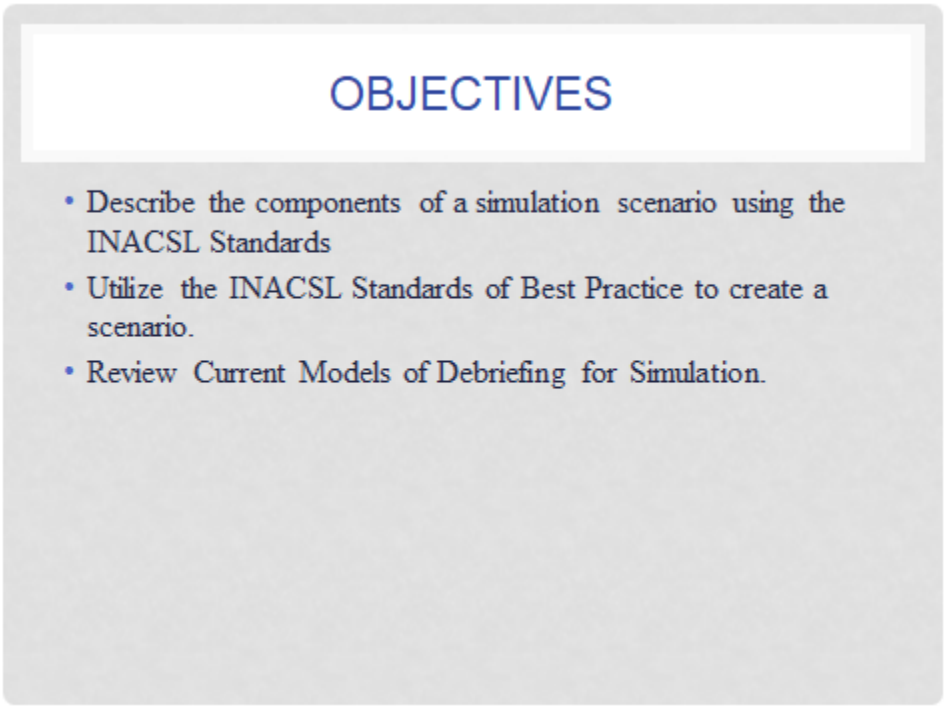


REFERENCES

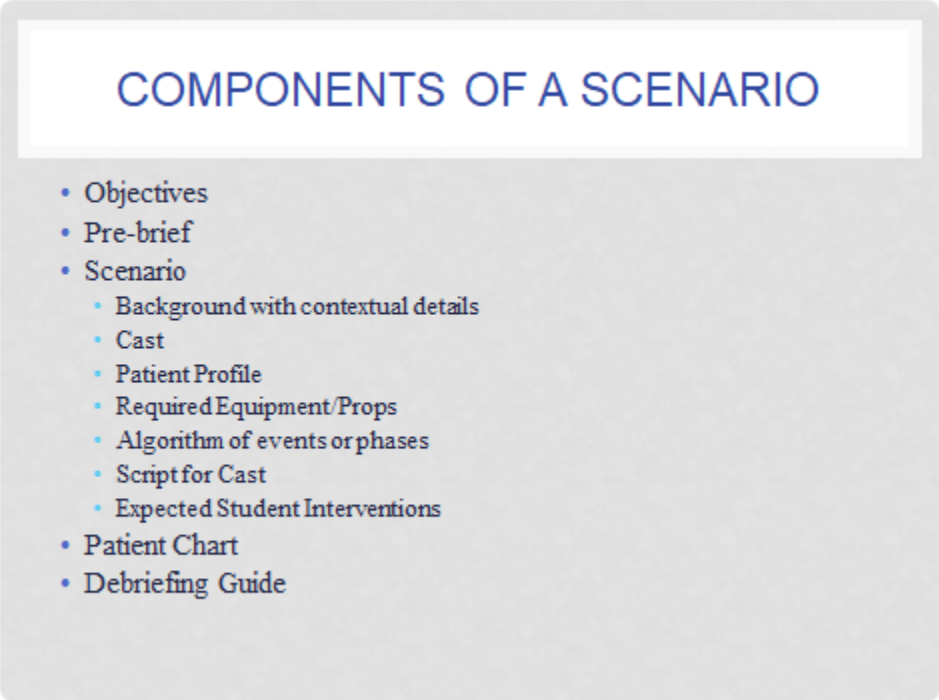
- Alexander, M., Durham, C., Hooper, J., Jeffries, P., Goldman, N., Kardong-Edgren, S., Kesten, K., Spector, N., Tagliareni, E., Radtke, B., & Tillman, C. (2015). NCSBN Simulation guidelines for prelicensure nursing programs. *Journal of Nursing Regulation, 6*(3), 39-42. Retrieved from journalofnursingregulation.com.
- Arizona State Board of Nursing. (2014). *2014-2016 Education Advisory Committee Goals and Activities.* Retrieved from https://www.azbn.gov/educationcommittee
- Center for Disease Control and Prevention. (2009). Evaluation briefs: Writing SMART objectives. Retrieved from http://www.cdc.gov/healthyyouth/evaluation/pdf/brief3b.pdf.
- INACSL. (2016). *Standards of best practice: Simulation℠*https://www.inacsl.org/i4a/pages/index.cfm?pageid=3407
- Knowles, M., Holton, E., & Swanson, R. (2011). *The Adult Learner*. Burlington, MA: Elsevier.
- Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, N.J.: Prentice-Hall.
- Wilson, L. & Wittmann-Price, R. (2015). *Review manual for the certified healthcare simulation educator (CHSE) exam* New York: Springer Publishing Co.

SIMULATION: BOOTCAMP FOR EDUCATORS

DAY 2



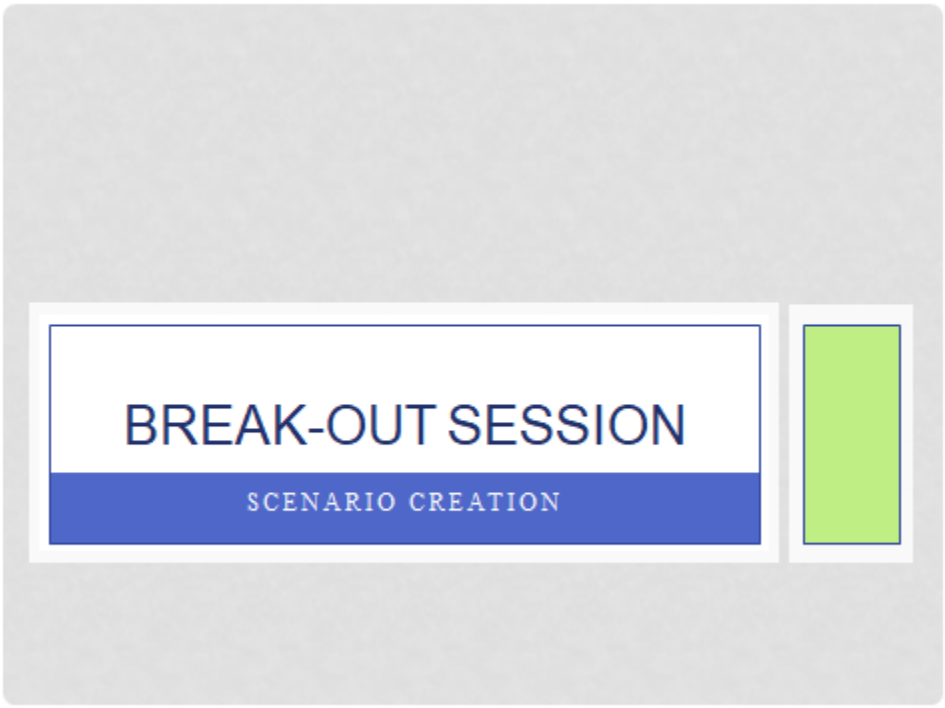
This is a duplicate slide of what we covered yesterday to refresh your memory and to set the stage for creating your own scenario today.

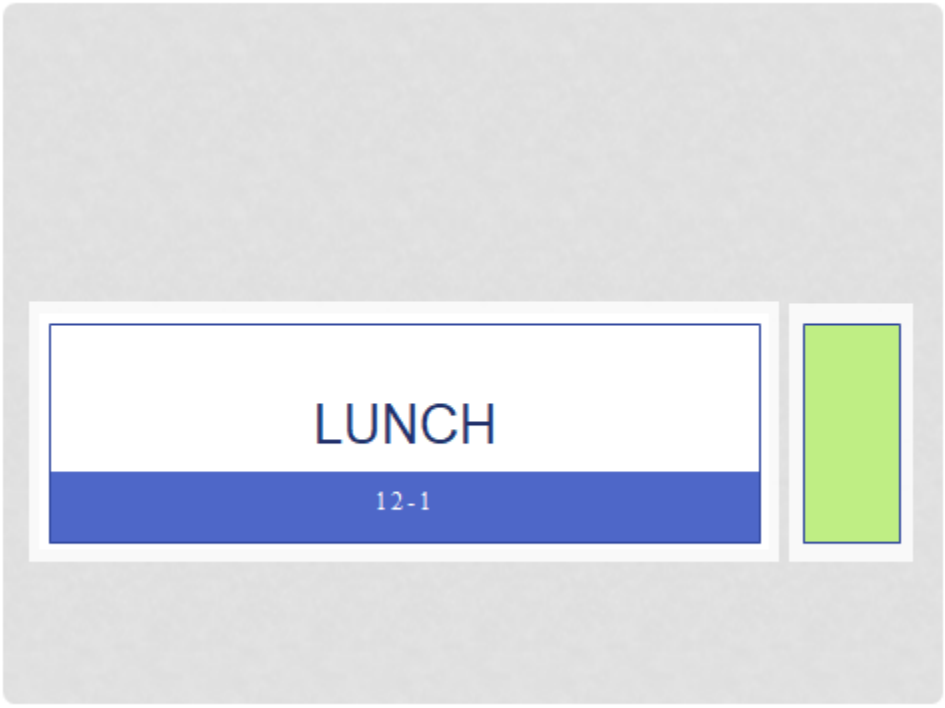


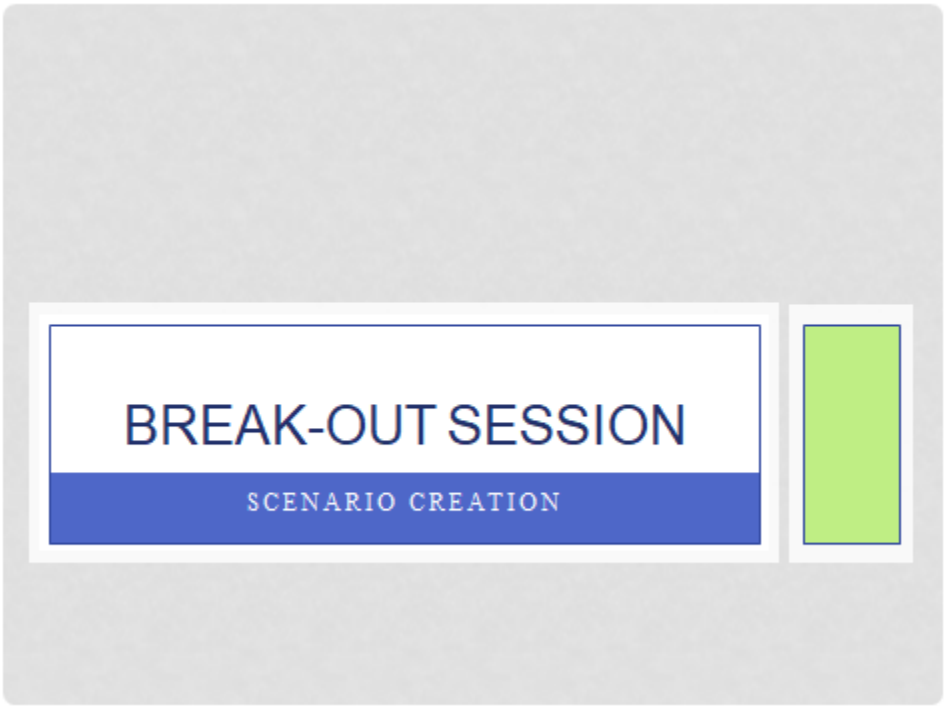
Yesterday, we reviewed objectives and prebriefing. Today we are going to discuss in details what is needed for a complete simulation scenario including the parts of a patient's chart such as provider's orders, medication administration sheet, and diagnostic testing. Afterwards, you will have a break-out session and the opportunity to create a scenario for a course.

In the afternoon, we will dig deep into the concept of debriefing.

I have provided everyone with a copy of the NLN Scenario template. This is a free download from the NLN Simulation Resources Innovation Center abbreviated SIRC. There are several templates available for free on the internet. If you desire, you could create a template of your own. Just be sure to include all of the components as identified on this slide.

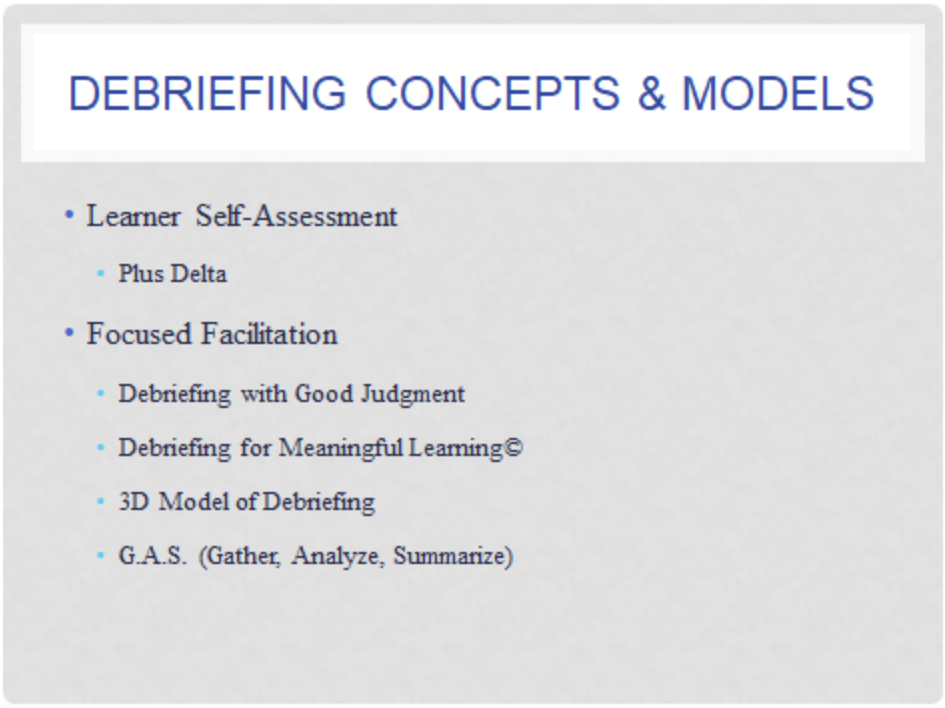

BREAK-OUT SESSION
SCENARIO CREATION


LUNCH
12-1



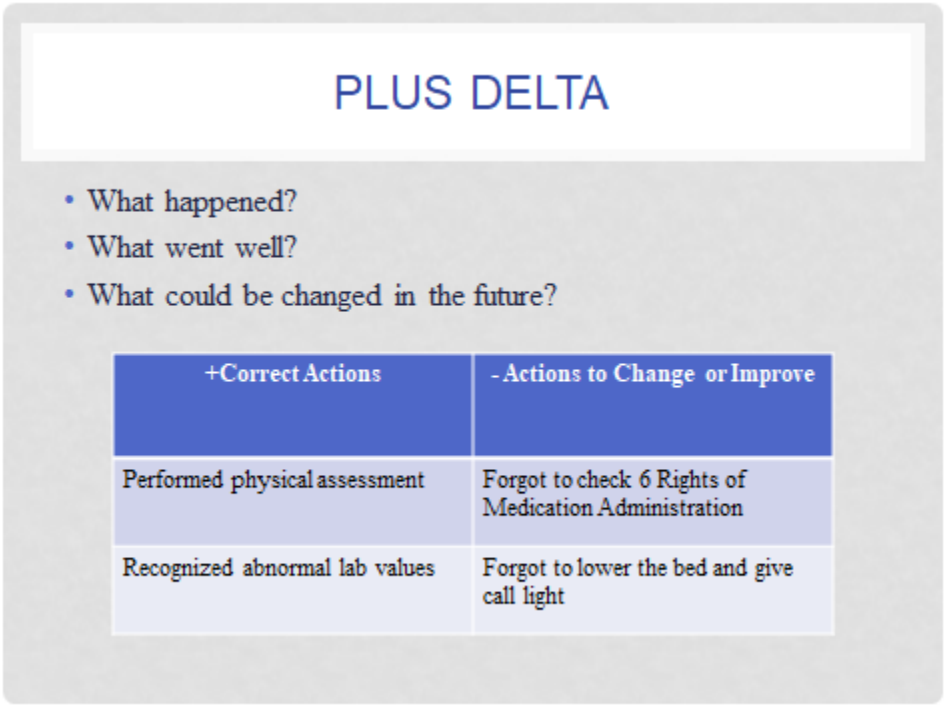
Debriefing is often referred to as the most important aspect of simulation as this is where the students reflect on their actions and learning occurs. It should be student-centered

where the facilitator asks guiding questions, but should allow the students to do most of the of the talking. Be the guide on the side. Count to 10 before speaking and filling in the gaps of silence. The learners are reflecting and need time to formulate their answers. Facilitate a discussion that promotes the learners to gain a clear understanding of his or her performance during the simulation. The facilitator provides feedback on the learner's performance. Failure to do so can lead to poor patient outcomes. Using structured questions, the facilitator can guide the learner through self-reflection-on-action to improve future performance. Students learn "by discovering their mistakes and learning how to correct them" (Kim & Sunghee, 2017, p 202).



Debriefing is a learner-centered process where the students learn to connect all three domains of learning: KSA. The instructor guides the learner to think about what they did, how they did it, and how they can improve.

Simulation is charged with emotions. Students are performing in front of their peers, their faculty, and the simulation operator. It is important to maintain a psychologically safe atmosphere at all times by focusing on the positive and not to emphasize errors.

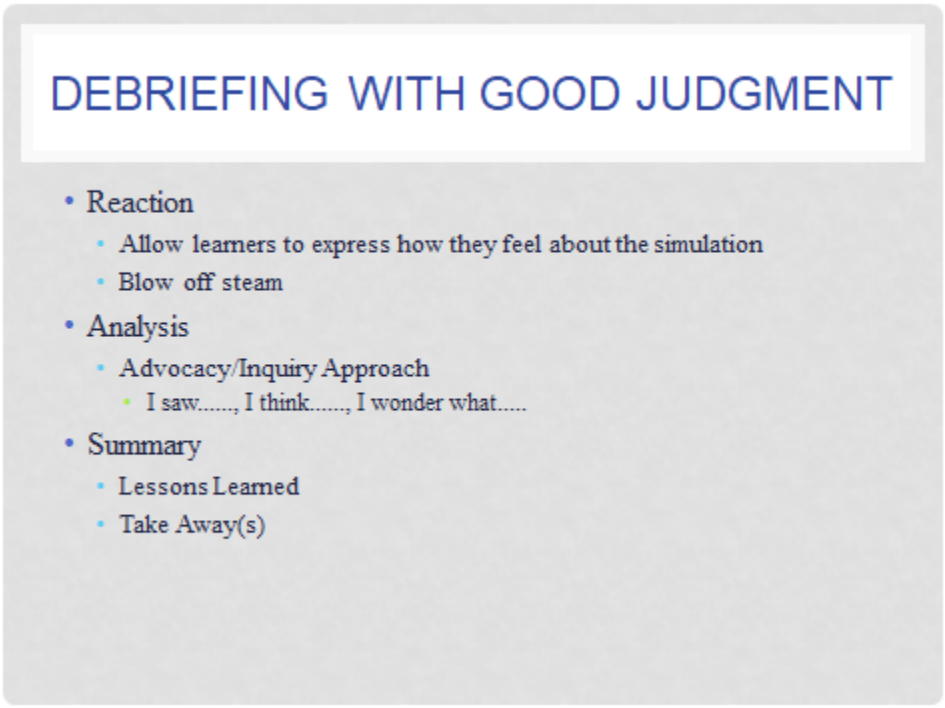


PLUS DELTA

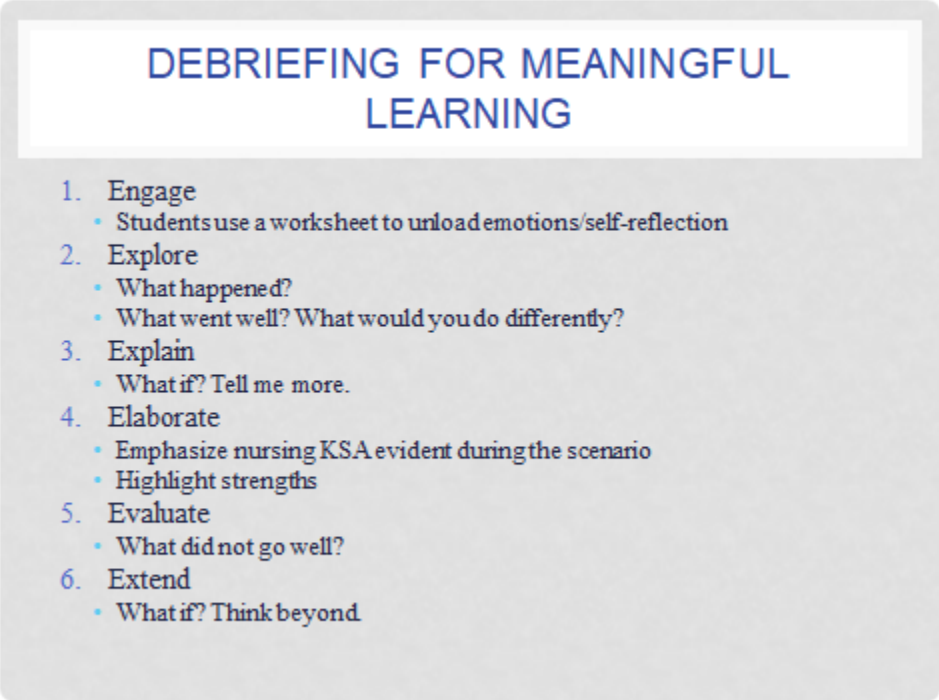
- What happened?
- What went well?
- What could be changed in the future?

+Correct Actions	- Actions to Change or Improve
Performed physical assessment	Forgot to check 6 Rights of Medication Administration
Recognized abnormal lab values	Forgot to lower the bed and give call light

Plus Delta: essentially creating two columns, one for the positive actions (plus) and one for negative actions (delta). This is a quick and easy to use non-threatening method. It is superficial and should not be substituted for deep reflective debriefing. This method is appropriate for the novice learner that is new simulation.

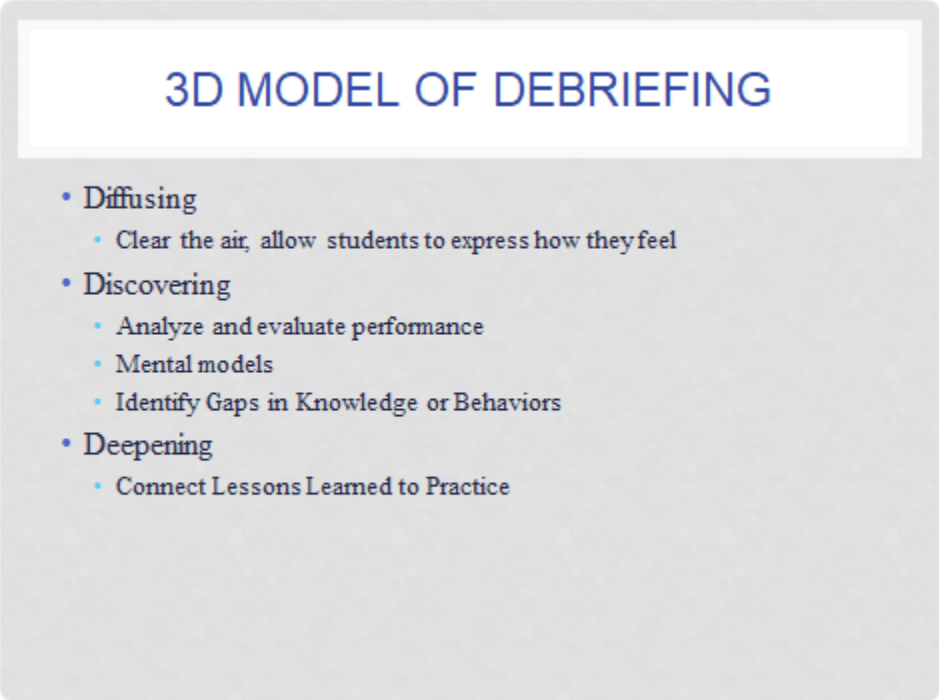


Good Judgement: Reaction, Analysis, Summary. Also known as the Advocacy/Inquiry approach using I and referring to the patient. Always assume positive intent and that there may be a reason for the learner's action. Be genuinely curious. "I noticed during that you placed a NRB on the patient, but did not increase the oxygen to 15 liters. That concerns me because it is important to give the correct amount of oxygen flow with each type of oxygen delivery device. Can you tell me what you were thinking at that time? "I saw, I think, I wonder"



DML: This method uses non-threatening Socratic questioning to expose learning the thinking behind the action. The teaching does not directly answer the students question, but guides the learner to uncover the answer by asking a series of questions to promote deep learning and reflection. This model has six steps: engage, explore, explain, elaborate, evaluate, and extend.

Dreifuerst, K. T. (2015). Getting started with debriefing for meaningful learning. *Clinical simulation in nursing, 11*(5), 268-275. doi:10.1016.j.ecns.2015.01.005

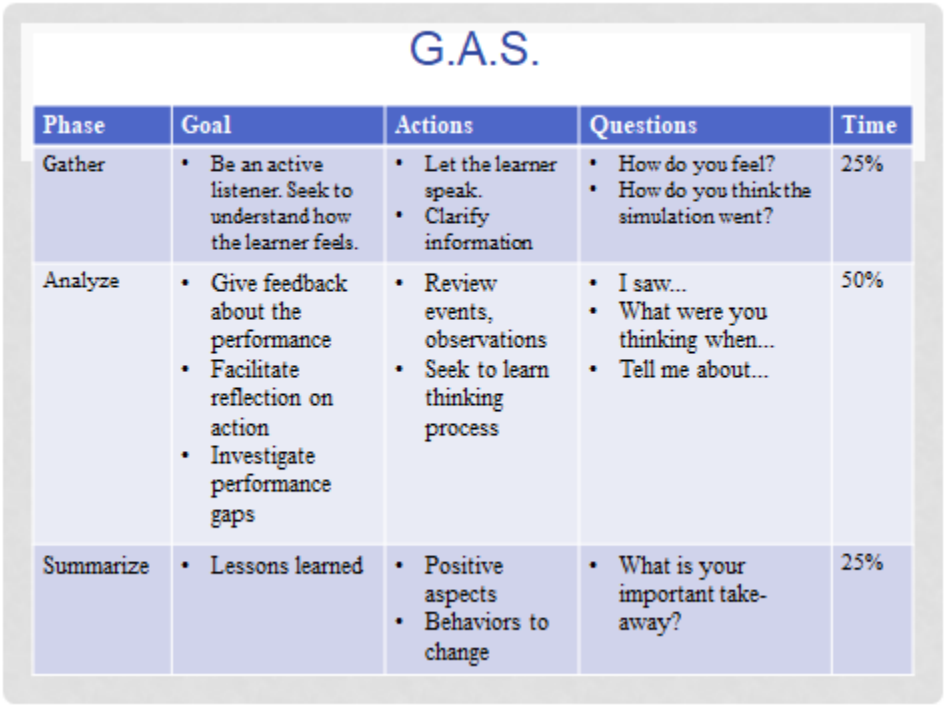


Diffuse: how do you feel? Encourage learners to share how they feel. Remember simulation is an emotionally charge activity.

The **discovering phase** is where the learner is examining their own mental models for their actions. The facilitator needs to understand what the learner believes or thinks about his or her action. Without discovering their understanding of their behavior the facilitator will not be able to change behavior. “I am curious to know...Can you tell me why you did....

Deepening is a series of a-ha moments where each learner is encouraged to reflect on their role and performance and form new mental models to improve future practice. How would you handle a similar situation in the future?

Sawyer, T., Eppich, W., Brett-Fleegler, M., Grant, V., & Cheng, A. (2016). More than one way to debrief: a critical review of healthcare simulation debriefing methods. *Simulation in Healthcare*, *11*(3), 209-217.



G.A.S.

Phase	Goal	Actions	Questions	Time
Gather	• Be an active listener. Seek to understand how the learner feels.	• Let the learner speak. • Clarify information	• How do you feel? • How do you think the simulation went?	25%
Analyze	• Give feedback about the performance • Facilitate reflection on action • Investigate performance gaps	• Review events, observations • Seek to learn thinking process	• I saw... • What were you thinking when... • Tell me about...	50%
Summarize	• Lessons learned	• Positive aspects • Behaviors to change	• What is your important take-away?	25%

GAS: A 3-phase debriefing model Gather, Analyze, Summarize. Gather information to understand how the learners feel and think about the experience. Analyze their actions and summarize what was learned. Gather phase encourages the students to review the events and establish a shared mental model. Analysis phase uses direct questions to stimulate reflection and reveal the learner's thought processes. Summary phase be sure to address the objectives and lessons learned.

SIMULATION RESOURCES

- INACSL
- NLN SIRC
- Society for Healthcare Simulation (SSH)
- University of Washington-Free Sim Training
- Arizona Simulation Network
- California Simulation Alliance
- Laerdal SimStore
- Behind the Sim Curtain

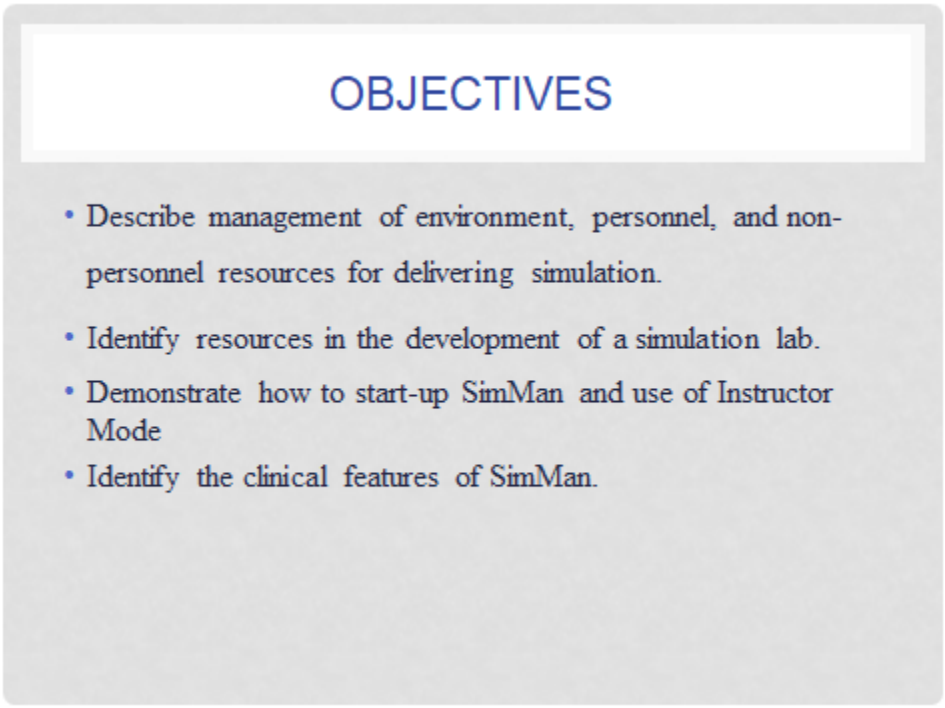
WRAP-UP / QUESTIONS?

REFERENCES

- Dreifuerst, K. T. (2015). Getting started with debriefing for meaningful learning. *Clinical simulation in nursing*, *11*(5), 268-275. Doi:10.1016.j.ecns.2015.01.005
- Eppich, W., & Cheng, A. (2015). Promoting excellence and reflective learning in simulation (PEARLS): development and rationale for a blended approach to health care simulation debriefing. *Simulation in Healthcare*, *10*(2), 106-115.
- INACSL. (2016). *Standards of best practice: Simulation*SM https://www.inacsl.org/i4a/pages/index.cfm?pageid=3407
- Kim, M. & Sunghee, K. (2017). Debriefing practices in simulation-based nursing education in South Korea. *Clinical Simulation in Nursing*, *13*(5), 201-209. Doi: 10.1016/j.ecns.2017.01.008
- Mullan, P. C., Kessler, D. O., & Cheng, A. (2014). Educational opportunities with post event debriefing. *Jama*, *312*(22), 2333-2334.
- Rudolph, J. W., Raemer, D. B., & Simon, R. (2014). Establishing a safe container for learning in simulation: the role of the presimulation briefing. *Simulation in Healthcare*, *9*(6), 339-349.
- Sawyer, T., Eppich, W., Brett-Fleegler, M., Grant, V., & Cheng, A. (2016). More than one way to debrief: a critical review of healthcare simulation debriefing methods. *Simulation in Healthcare*, *11*(3), 209-217.
- Society for Simulation in Healthcare. (2016). Healthcare Simulation Dictionary. Retrieved from ssh.org/dictionary

SIMULATION: BOOTCAMP FOR EDUCATORS

DAY 3



A copy of the Advisory Opinion is included in the handouts.

Personnel:

1 faculty per 4-5 students (Formative)

2 evaluators per student (Summative)

Adequate personnel for set-up and take-down

Prep-work for faculty

Student observers-faculty must be present

Physical Resources:

Simulation suite with observation/operator space

Equipment of a fidelity identical or nearly identical to that commonly used in clinical settings

Audio and video recording and play back capabilities that allow learners and faculty to review performance

Separate room for observers to watch remotely

Informed consent

Learning Materials:

Scenarios consistent with the INACSL Standards

Annual review of scenarios

Validated scenarios

Required prep work for the scenario.

Training Requirements:

Formal immersion training for facilitators

Competency assessment

Ongoing in-service followed by targeted work

Arizona State Board of Nursing. (2015). *Education Advisory Committee*. Use of Simulation in Approved RN/LPN Programs. Retrieved from https://www.azbn.gov/educationcommittee

Financial Resources: Simulation is costly and requires financial resources to create the simulation lab, purchase high-fidelity manikins, supplies, and ongoing maintenance. Allocation of financial resources must be considered when implementing simulation and may be a challenge for many institutions. Costs are involved in the capital investment of manikins and associated warranties, creating a space that is similar to that of a hospital, audio/video recording, props, and equipment such as hospital beds and intravenous pumps.

Financial Considerations for Manikins, Warranties, and Equipment:

Equipment of fidelity identical or nearly identical to that commonly used in clinical settings such as SimMan or Noelle the birthing simulator

High-fidelity simulators cost start at $45,000 without installation or patient monitors or warranties. Some vendors will only warranty their manikins for 5 years while others will allow renewal of warranties up to 10 years. I recommend keeping detailed records about the number of simulations that each manikin is used, so that you can justify the need for replacement when the time comes.

Audio and video recording and play back capabilities that allow learners and faculty to review performance is another consideration when creating a space for simulation or retrofitting. Take into consideration the power, electrical, and data capacity is required for current and future use.

Supplies: IV pumps and poles, crash cart, headwall components, doppler, sterile and non-sterile disposable gloves, oxygenation delivery systems, to name a few.

Physical Resources:

Simulation suite with observation/operator space

Equipment of fidelity identical or nearly identical to that commonly used in clinical settings

Audio and video recording and play back capabilities that allow learners and faculty to review performance

Separate room for observers to watch remotely

Informed consent

Personnel:

1 faculty per 4-5 students (Formative)

2 evaluators per student (Summative)

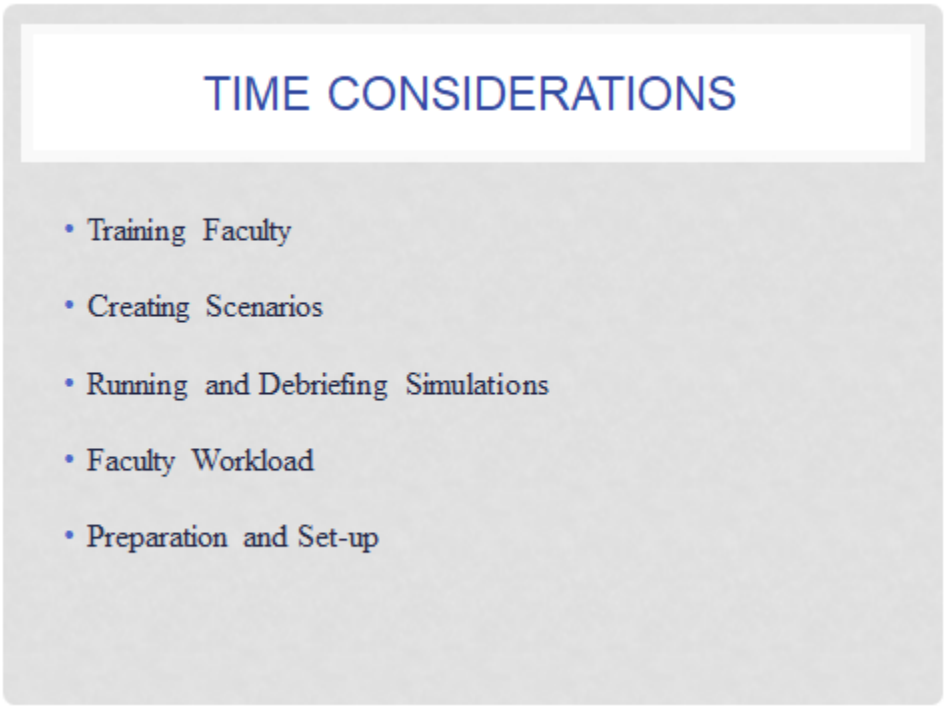
Adequate personnel for set-up and take-down

Prep-work for faculty

Student observers-faculty must be present

Cost of faculty development, cost of personnel,

Administrators and staff should consider the possibilities of collaborating with local hospitals or clinics that wish to donate expired supplies (Lazzara et al., 2014) to decrease expenditures. For schools with limited budgets, it may be necessary to seek outside funding from community resources or grants (Galati & Williams, 2015; Leighton, 2015; Jeffries et al., 2015; Lazzara et al., 2014). Ensuring a sustainable simulation program requires careful cost analysis of the equipment needed and replacement of durable equipment.



Deans and Directors need to consider the time that it takes to learn how to run the simulator.

Implementing simulation can be daunting to faculty as there are several pieces of technology that must

be initialized and possibly troubleshooting technical problems. Simulation is time intensive as there are many components that must be considered and require preparation. Creating scenarios is time-consuming (Leighton, 2015) and learning how to run the simulator takes additional time. Attending a one-time training is not enough to be competent in facilitating simulation. Simulationists need time to master facilitating the scenario and gain debriefing skills. Training that is provided by the vendors is related to operating the manikin not best educational practices. Creating scenarios can take hours to create as we learned yesterday. The manikin must be prepared with props such as

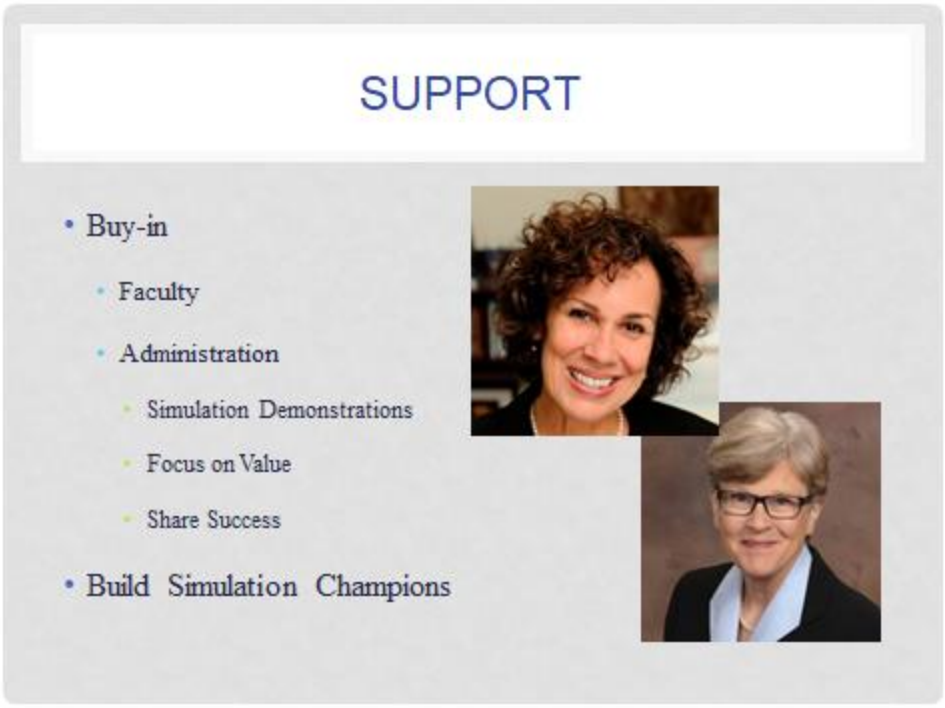
makeup, wounds, IV fluids, medications, bruises, glasses, or personal paraphernalia such as cell phone, backpack, and cigarettes. Implementing a scenario can take between 30 and 45 minutes to run depending on the level of the student and the complexity of the scenario. Ideally, there should be 3-4 students participating in a scenario. Therefore, the scenarios may have to run several times to accommodate the number of students in the course. Faculty will need an adjustment in their workload credit when assigned to participate in simulation. Kardong-Edgren (2015) discussed how the "intensity and workload" related to simulation is often ignored. Participating in simulation can be compared to the workload credit used when faculty teach a clinical component at a hospital or clinic. Hollema (2015) reported that faculty identified that they would need 0.5 FTE for planning and implementing simulation. Leaders should consider hiring a designated simulation coordinator to facilitate setting up the equipment and simulation environment (Aldridge, 2016; Jeffries et al., 2015).

Key stakeholders should have "input into the design of the simulation center and in selecting the technology" (Gardner et al., 2015, p.4). Considerations should be made for the technology aspects such as Wi-Fi and audio- visual equipment (Riley, 2016). Physical Space: Whether you are retrofitting or creating a new simulation lab, careful planning and collaboration with all stakeholders will be critical.

Simulation suite with observation/operator space, which ideally has a two-way mirror for observing the students. The operator of the simulator is also the voice of the patient; so it is important that the operator can see all student interventions. Remember that you should strive to create a space that replicates the clinical environment to create realism for student *buy-in.* A separate room for observers to watch remotely, which can also be used for prebriefing and debriefing.

Consider space for storing medical supplies such as kits for inserting catheters, tracheal care, wound care, IV tubing to name just a few. Thought should be given to the storage and organization of supplies and equipment for ease of use and tracking inventory.

Audio-visual needs: Cameras to view two-three angles of the patient's room with zoom capabilities. Quality microphones so that the operator can clearly hear the conversations between the students and the patient. It is a good idea to record the scenario for play-back during debriefing. This system will also be necessary if you desire to implement high-stakes testing where you need to have at least two faculty evaluate the student's performance.



A recommendation would be to invite faculty and administration who are not proponents of simulation to a simulation scenario and include all faculty in simulation training. Inviting naysayers to a live

simulation is very powerful when they can see the students in-action applying critical thinking and clinical reasoning to a patient scenario.

Faculty *buy-in:* To overcome resistance to using simulation a simulation workshop should be required by all faculty (Larsen & Shultz, 2014). Faculty may be more willing if professional development provided, IT support, or a simulation team available to run sims. Providing technology support may help alleviate a faculty member's reluctance to use simulation (Gardner et al., 2015). Consider hiring a simulation manager to run and organize simulations and scheduling.

Administrative *buy-in*: A critical first step for deans and directors is to create awareness with upper-level administration (Taplay et al., 2015).

Focus on Value: Share the results of the of NCSBN (2014) study.

Up to 50% Simulation may be substituted for clinical

No Statistically Significance Differences:

Preceptor Ratings of Clinical Competency

Nursing Knowledge

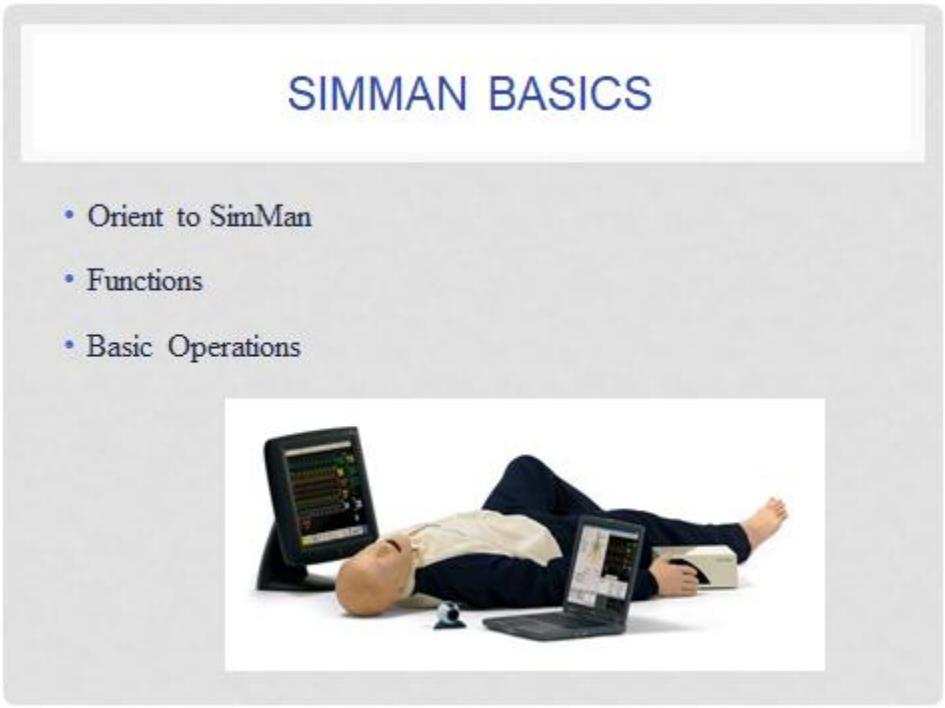
NCLEX Pass Rates

No Statistically Significance Differences in Clinical Competency or Readiness

Participant self-ratings at 6 Weeks, 3 Months, or 6 Months

In addition, leadership is needed to duplicate the same results as the recent NCSBN study (Kardong-Edgren, 2015). Support from upper-level management is needed for financial planning to secure equipment, allocating designated

simulation space, hiring support staff, and supporting faculty development.



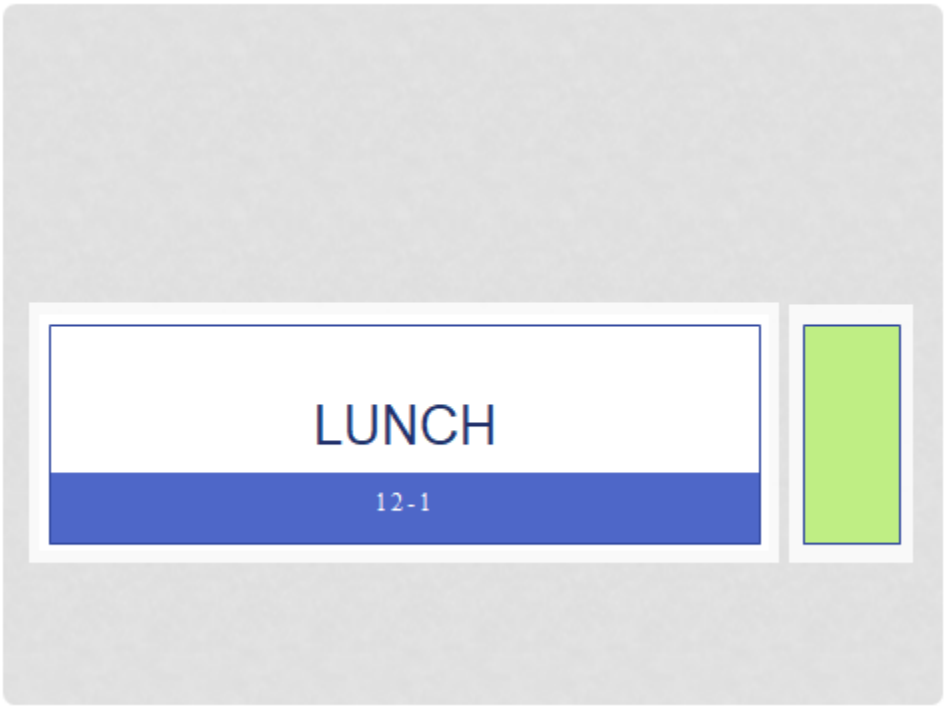
We will now go into one of the simulation rooms and review how to operate a simulator.

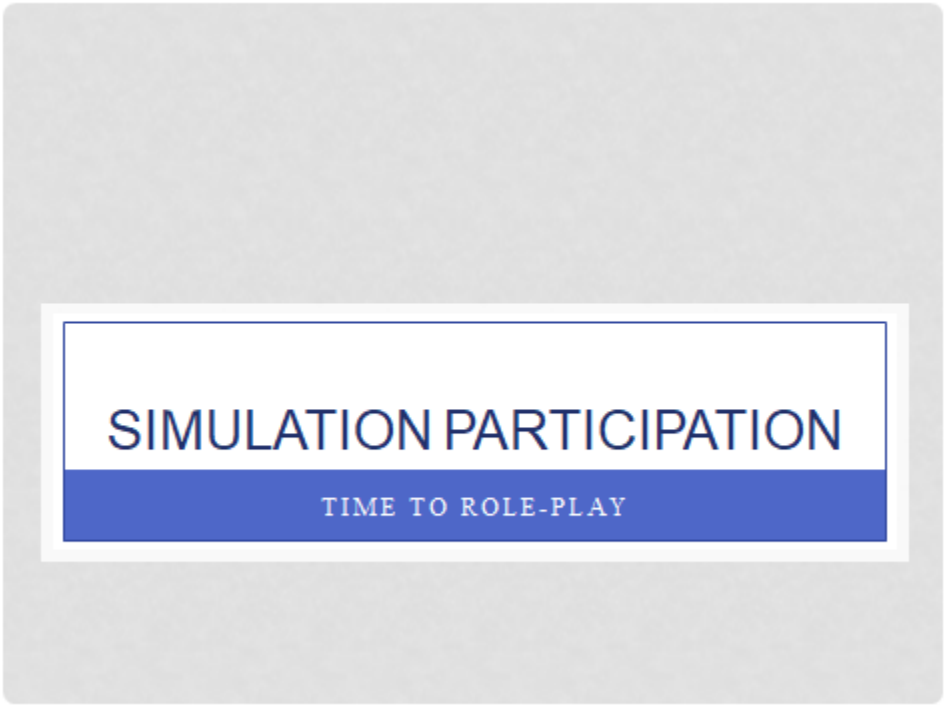
1. Identify the clinical features of SimMan

2. Learn how to start up a simulation in the correct order

3. Learn how to operate SimMan in the Instructor mode

4. Change the parameters of SimMan physiological responses





The time has come to participate in a simulation scenario. This is an important aspect of training, so that each of you can experience the impact of a simulation from a student's

perspective. Remember how important it is to establish a psychologically safe environment? Participating in a scenario will provide insight into the student's feelings, which supports the need for student's to verbalize their feelings or 'clear the air' as the first step in debriefing. With that said, we will need four volunteers for the part one and four for part two of the scenario.

The scenario is divided into two phases. The first group of volunteers will participate in the scenario and then we will debrief. Then the second group of volunteers will participate in phase 2 of the scenario and then another debriefing. Therefore, we will also need two groups of two to co-debrief after phase one and again after phase two.

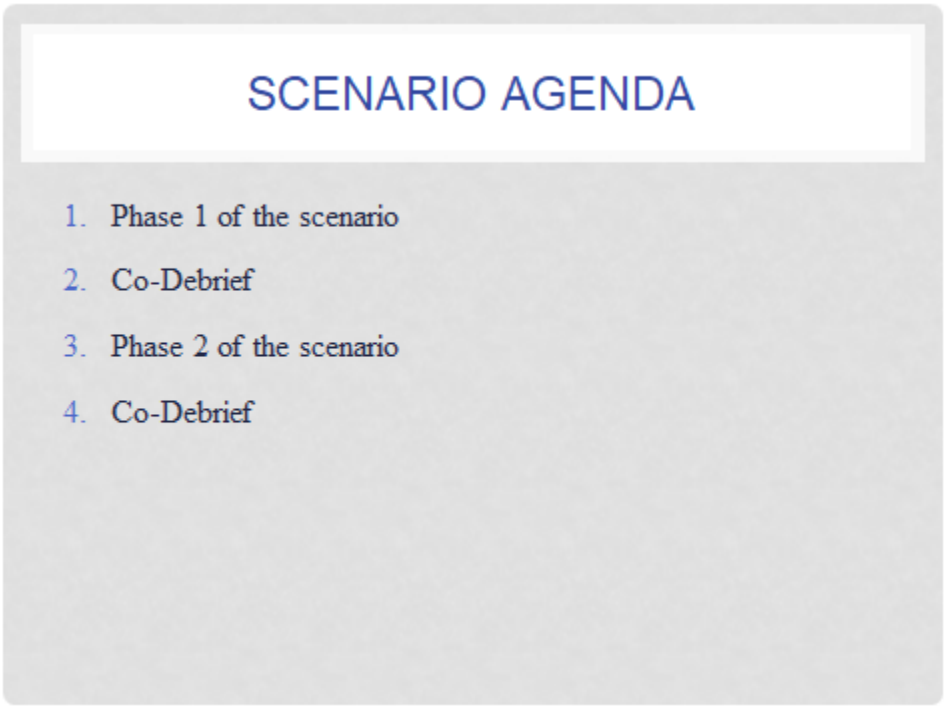
Roles:

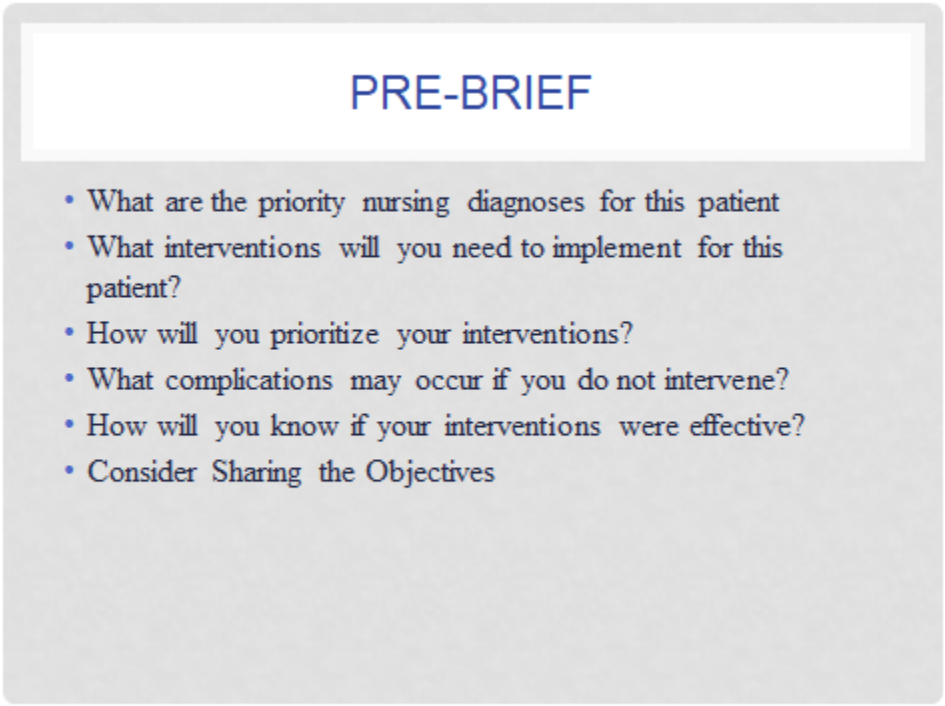
Documentation Nurse

Assessment Nurse

Medication Nurse

Charge Nurse





Prior to prebriefing, identify 4 volunteers from the audience that will participate in the scenario and identify two individuals willing to co-debrief the participants after the

scenario. Assign the following roles to each of the volunteers: Charge Nurse, Assessment Nurse, Medication Nurse, and Documentation Nurse.

After receiving report on the patient, then ask the learners these questions or provide them with the objectives (see INACSL standard regarding objectives). Once these questions are answered then ask if they feel like they are prepared to care for the patient. When all are in agreement proceed to the simulation lab and orient the participants to the environment and patient's medical chart. Allow the volunteers 5 minutes to review the patient's chart and plan and prepare their care and then begin the scenario. After the objectives of the scenario have been met, end the scenario "this concludes your simulation, thank you for your care", and proceed to co-debrief the learners. De-briefers will be given a structured debriefing guide to facilitate debriefing, which is included in Appendix A.

WRAP-UP / QUESTIONS?

REFERENCES

- Acton, R., Chipman, J., Lunden, M., & Schmitz, C. (2015). Unanticipated teaching demands rise with simulation training: Strategies for managing faculty workload. *Journal of Surgical Education, 72*(3), 522-529. Doi: 10.1016/j.surg.2014.10.013
- Aldridge, M. (2016). How can nurse educators perform patient simulation efficiently? *Teaching and Learning in Nursing, 11*(1), 8-14. doi: 10.1016/j.teln.2015.09.001
- Arizona State Board of Nursing. (2015). *Education Advisory Committee*. Use of Simulation in Approved RN/LPN Programs. Retrieved from https://www.azbn.gov/educationcommittee
- Galati, M. & Williams, R. (2013). Business planning considerations for a healthcare simulation center. In A. Levine, S. DeMaria, A. Schwartz & A. Sim (Eds.), *The comprehensive textbook of healthcare simulation,* doi: 10.1007/978-1-4614-5993-4_46. New York: Springer Science
- Gardner, A., Lachapelle, K., Pozner, C., Sullivan, M., Sutherland, D., Scott, D., Smith, L., & Sachdeva, A. (2015). Expanding simulation-based education through institution-wide initiatives: A blueprint for success. *Surgery, 158*(5), pp1403-1407. Doi: 10.1016/j.surg.2015.03.040
- Hollema, C. (2015). Faculty development in high fidelity clinical simulation. *International Journal of Nursing Didactics, 5*(9), 1-5. Doi: 10.15520/ijnd.2015.vol5.iss9.110.01-05
- Jeffries, P., Dreifuerst, K., Kardong-Edgren, S & Hayden, J. (2015). Faculty development when initiating simulation programs: Lessons learned from the national simulation study. *Journal of Nursing Regulation, 5*(4), 17-23. Retrieved from journalofnuirsingregulation.com

REFERENCES CONTINUED

- Larsen, T. & Schultz, M. (2014). Transforming simulation practices: A quest for return on expectations. *Clinical Simulation in Nursing, 10*(12), 626-629. doi: 10.1016/j.ecns.2014.09.004
- Lazzara, E., Benishek, L., Dietz, A., Sala, E., & Adriansen, D. (2014). Eight critical factors in creating and implementing a successful simulation program. *The Joint Commission Journal on Quality and Patient Safety, 40*(1), 21-29. Retrieved from http://www.jointcommissionjournal.com/article/S1553-7250(14)40003-5/abstract
- Leighton, K. (2015). Simulation in nursing. In A. Levine, S. DeMaria, A. Schwartz & A. Sim (Eds.), *The comprehensive textbook of healthcare simulation,* doi: 10.1007/978-1-4614-5993-4_46. New York: Springer Science.
- Riley, R. (2016). *Manual of simulation in healthcare* (2nd ed.). United Kingdom: Oxford Press.
- Rudolph, J. W., Raemer, D. B., & Simon, R. (2014). Establishing a safe container for learning in simulation: the role of the presimulation briefing. *Simulation in Healthcare, 9*(6), 339-349
- Taplay, K., Jack, S., Baxter, P., Eva, K., & Martin, L. (2015). The process of adopting and incorporating simulation into undergraduate nursing curricula: A grounded theory study. *Journal of Professional Nursing, 31*(1), 26-36. Doi: 10.1016/j.profnurs.2014.05.005

Simulation Design Template

Date: 09/01/2017

Discipline: Nursing **Student Level:** Medical-Surgical

Run Time: 20-30 minutes **Guided Reflection Time:** 60 minutes

Location: Telemetry **Location for Reflection:** Debriefing Room

Admission Date: Today **Today's Date:** Today

Brief Description of Patient

Name: Janice Johnson

Gender: F **Age:** 76 **Race:** Caucasian **Weight:** 75kg **Height:** 5'5"

Religion: Non-denomination

Major Support: Granddaughter

Allergies: NKDA **Immunizations**: UTD

Primary Care Provider: Dr Soriano

Past Medical History: HTN, Atrial Fib, CAD, Hyperlipidemia, TIA

Social History: Widow, lives with her granddaughter. Non-smoker, non-drinker

Primary Medical Diagnosis: Cerebral Vascular Accident

Surgeries/Procedures & Date: Cholecystectomy 1976

Nursing Diagnoses: Alteration in Cerebral Perfusion

Psychomotor Skills Required Prior to Simulation:

Physical Assessment
Medication Administration
Intravenous pumps and maintenance

Cognitive Skills Required:
Standard Precautions
Communication Skills
Clinical Prioritization Skills

Cognitive Activities Required Prior to Simulation:

Cardiovascular Lecture
Neurological Lecture
Pharmacology Course

Simulation Learning Objectives

Perform initial and focused assessment. Recognize and interpret abnormal findings in a patient who has experienced an ischemic stroke.
Initiate and manage appropriate nursing interventions to include anti-hypertensive and anti-arrhythmia medications.
Provide patient and family comfort care throughout neurological crisis.
Apply the principles of safe intravenous medication administration.

References, Evidence-Based Practice Guidelines, Protocols, or Algorithms Used for This Scenario:
National Institute of Health Stroke Scale
Cincinnati Stroke Scale

Supplies and Equipment Needed

Setting: Telemetry

Simulator Manikin: SimMan 3G

Medications & Fluids: IV Fluids, IV Push

Props: Grey wig, Reading Glasses, Makeup

Equipment Attached to Manikin: IV tubing with primary line, IV pump, Oxygen devices, ECG monitor attached, ID band, and IV drug book

Equipment Available in Room: IV pump

Medications and Fluids: 09. % normal saline, Labetalol injection

Diagnostics Available: ECG

Documentation Forms: Provider orders, Nursing Flow Sheet, MAR

Recommended Mode for Simulation: Manual

Student Information Needed Prior to Scenario: Orient to simulator, Understands guideline/expectations for scenario. All participants understand their assigned roles.

Report Students Will Receive Before Simulation

Time: 0800

SITUATION	Patient: Janice Johnson	Age: 76
	DOB: 02/12/19XX	Sex: Female
	Religion:	Ethnicity:
	Provider: Dr. Soriano	Allergies: NKDA
	MRN: 86924745	Code status: Full
	ADM DIAGNOSIS: Cerebral Vascular Accident	SURG:
PMHx	Hyperlipidemia, HTN, and Atrial fibrillation	
HPI	0630 found slumped over a chair by granddaughter	
SHx	unknown	
VS	210/120, HR 96, RR 18, SpO2 92% on RA, T 98.5F	
Oxygen	2L/NC	
	Wt today:	
IV	RFA 0.9% NSS at 75mL/hr	
I & O	I&O	
Dressing/Incision	None	
ADLs	Diet: NPO	ACTIVITY: BR
Restrictions	ISOLATION:	FALL RISK: High
Assessment	Neuro: Left facial droop, left-side weakness, incoherent speech	
	Cardiac: NSR	
	Resp: Unlabored	
	GI: GU:	
	Integumentary:	
	Ortho/Mobility: Left-side weakness	
	Psychosocial:	
ASSESSMENT	She is awake, incoherent speech, left-side facial droop and weakness. The CT of her Head was negative for bleed	
RECOMMENDATIONS	Monitor blood pressure and safety	

Scenario Progression Outline

Time	Monitor Settings	Manikin Actions	Student Interventions	Cues/Prompt
0-5 min	BP: 210/120, HR 94 (NSR), RR 18, SpO2 92% on RA, Temp: 98.4 F.	PAIN: Headache (from elevated BP) Rate 3 PATIENT: LOCx4 EYES: Left eye closed. Left visual field loss. HEART: Volume: 80%. NSR on monitor LUNGS: Clear, no SOB noted. GI/GU: Normal bowel sounds. Ext: L side deficit, No movement of L arm. Spontaneous movement of L leg. Moves right leg and R arm on command. No edema. SPEECH: Understandable, but slurred	Wash hands Introduce self Identify patient Obtain vital signs Neurological assessment Assess IV site Evaluate Doctor's orders	Patient is slightly agitated. Startles when learners approach her from her left side (vision loss indicator) • "I'm so thirsty." • "Could you please give me just a sip of water?" • "I haven't had anything to drink since I got here last night."
5-20 Min	BP RANGE: 210/120 – 190/100 HR RANGE: 110-120 RESP RANGE:16-20 PAIN RANGE: 3-4 O2 Sat RANGE: 93 – 95% on 2L/min	**IF WATER AND/OR PO MEDS ARE ADMINISTERED, CLIENT WILL ASPIRATE. Cough begins, respirations increase, SpO2 decreases, crackles will be heard in lungs** Pt is hypertensive and requires 2 doses of IV Labetalol to normalize blood pressure	Assessment, Labetalol IV push x 2 (20 MINUTES)	"What medication are you giving me?" "Can I have something to drink?"
20-30 Min	HR: 120-125		Group 1 reports to Group 2 using SBAR	
30-40 Min	VS: BP 165/90 HR range: 140-170, Monitor: A-fib w/RVR Resp Range: 20-25 O2 Sat Range: 90-95% at 2L/min or greater NC	EKG change to A-fib RVR	Wash hands Introduce self Identify patient Obtain vital signs Focused -Neuro & Cardiovascular assessment	• Answer questions • "I don't feel well" • "I feel dizzy/lighthe aded" • I feel like my heart is going to beat

	Pain Range: 3-5		Assess IV site Evaluate Doctor's orders CALL Doctor to notify change in condition and for orders	out of my chest" • "What's happening?" MD ORDERS: Labs RE: rhythm change to A-fib/RVR • MD: "What's her rhythm on the monitor?" • Order for STAT 12 lead EKG • Order for Cardizem 0.25mg/kg bolus (student should calculate: 25mg/5ml vial; dose is 19 mg = 3.8 ml over 2 minutes), then start 10mg/hr drip (125ml at 10ml/hr)

Debriefing/Guided Reflection Questions for This Simulation

(Remember to identify important concepts or curricular threads that are specific to your program)

1. How did you feel throughout the simulation experience?
2. Describe the objectives you were able to achieve.
3. Which ones were you unable to achieve (if any)?
4. Did you have the knowledge and skills to meet objectives?
5. Were you satisfied with your ability to work through the simulation?
6. If Observers: Could the nurses have handled any aspects of the simulation differently?
7. If you were able to do this again, how could you have handled the situation differently?
8. What did the group do well?
9. What did the team feel was the primary nursing diagnosis?
10. How were physical and mental health aspects interrelated in this case?
11. What were the key assessments and interventions?
12. Is there anything else you would like to discuss?
13. I saw.....I think.... I wonder....

Patient: Johnson, Janice	AGE: 76
Dr. Soriano	DOB: 02/12/xx
MRN: 86924745	NKDA
Ht: 65 inches	Wt: 75 kg

PHYSICIAN ORDERS

Date	Time	Family Practice Note
Today	0730	1. Admit to Med-Surg Telemetry Unit
		2. Attending: Dr. Soriano
		Consult neuro. Done. Dr. S. Ling to follow
		3. Consult: Physical therapy, Occupational therapy and Speech Therapy to evaluate/treat
		4. Admission Diagnosis: CVA
		5. Condition: guarded
		6. Allergies: NKDA
		7. Vital Signs: every 1 hour times 2, then every 2 hours times 2, then every 4 hours
		Neuro checks every 1 hour times 2 then every 2 hours times 2 then every 4 hours
		NIH scale every 4 hours and with any change in neuro status
		8. Call Dr. Soriano with any changes in neuro status
		9. Activity: Bedrest with BRP with assist
		10. Oxygen: O2 to keep SpO2 greater than or equal 94%
		11. I & O: strict I & O
		12. SCDs
		13. Diet: NPO until Speech has evaluated
		14. IV fluids: 0.9% NaCl to run at 75 ml/hr
		15. Medications:
		• Pantoprazole 40 mg IV push daily
		• Enoxaparin 1 mg/kg subcutaneous every 12 hours
		• Labetalol 20 mg IV push every 10 minutes as needed for SBP greater than 160
		○ Total Labetalol dose not to exceed 200 mg
		16. Diagnostic testing
		• CBC and BMP in AM
		Dr. Soriano

Patient: Johnson, Janice	AGE: 76
DR. Soriano	DOB: 02/12/xx
MRN: 86924745	NKDA

LAB RESULTS

Lab	Range	Results Date	Results Date
Hemoglobin	Females Blood 12–16 g/dL	11.8	
	Males Blood 14–17 g/dL		
Hematocrit	Females Blood 36–47%	34%	
	Males Blood 41–51%		
WBC	3.9–10.7 x 10^3 cells/µL	7.3	
Platelets	150–350 x 103/µL	160,000	
Sodium	136–145 mEq/L	147	
Potassium	3.5–5 mEq/L	4.2	
Chloride	98–106 mEq/L	113	
Calcium	9–10.5 mg/dL		
CO2	23–28 mEq/L		
Magnesium	1.5–2.4 mg/dL		
Creatinine	0.7–1.3 mg/dL	1.3	
BUN	8–20 mg/dL	24	
AST	0–35 U/L	15	
ALT	0–35 U/L	34	
ALK Phos	36–92 U/L	54	
LDH	60–160 U/L	136	
INR	2.0–3.0	1.0	
aPTT	25–35 sec	30	
BNP	< 100 pg/mL		
CPK	30–170 U/L		
CPK-MB	0-5 U/L		
Troponin	0.0-0.10 µg/mL		
Dig level	0.5-2.0 ng/mL		
Glucose	70–105 mg/dL	118	
Amylase	0–130 U/L		
Lipase	< 95 U/L		
Total Protein	6–7.8 g/dL	6.8	
Albumin	3.5–5.5 g/dL	4.2	

Attendee Evaluation

Material Content		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The material was well organized.					
2	The ideas and skills presented were useful.					
3	The information was new to me.					
4	The presentation met the training objectives.					
5	The presentation held my interest.					
6	Examples presented were relevant to content.					
7	The presentation pace was comfortable.					
8	I would recommend this training to a co-worker.					
9	Overall, I found the content to be very valuable.					
10	I can apply what I learned to my practice.					
11	The trainer was able to hold my interest.					
12	The trainer was able to stay focused.					
13	The trainer demonstrated knowledge of the topics presented.					
14	The trainer effectively responded to questions.					
15	The trainer solicited audience interaction.					
16	Overall, I found the trainer to be very effective.					
Which topics were most helpful?						
Which topics were least helpful?						

References for Professional Development

Acton, R., Chipman, J., Lunden, M., & Schmitz, C. (2015). Unanticipated teaching demands rise with simulation training: Strategies for managing faculty workload. *Journal of Surgical Education, 72*(3), 522-529. doi:10.1016/j.surg.2014.10.013

Agency for Healthcare Research and Quality. (2017). Healthcare simulation dictionary. Retrieved from https:/www.ahrq.gov/professionals/qulaty-patient-safety-resources/research/simulation-dictionary

Aldridge, M. (2016). How can nurse educators perform patient simulation efficiently? *Teaching and Learning in Nursing, 11*(1), 8-14. doi:10.1016/j.teln.2015.09.001

Alexander, M., Durham, C., Hooper, J., Jeffries, P., Goldman, N., Kardong-Edgren, S.,... Tillman, C. (2015). NCSBN Simulation guidelines for prelicensure nursing programs. *Journal of Nursing Regulation, 6*(3), 39-42. Retrieved from journaloifnursingregulation.com

Arizona State Board of Nursing. (2015). *Education Advisory Committee*. Use of Simulation in Approved RN/LPN Programs. Retrieved from https://www.azbn.gov/educationcommittee

CAE Healthcare. (n.d.). *Simulation Evaluation Tool-Modified (SET-M).* Retrieved from https://caehealthcare.com/resources//documentation

Center for Disease Control and Prevention. (2009). Evaluation briefs: Writing SMART objectives. Retrieved form http://www.cdc.gov/healthyyouth/evalution/pdf/brief

Dreifuerst, K. (2015). Getting started with debriefing for meaningful learning. *Clinical Simulation in Nursing, 11*(5), 268-275. doi:10.1016.j.ecns.2015.01.005

Eppich, W., & Cheng, A. (2015). Promoting excellence and reflective learning in simulation (PEARLS): Development and rationale for a blended approach to health care simulation debriefing. *Simulation in Healthcare, 10*(2), 106-115. doi:10.1097/SIH.0000000000000072

Galati, M. & Williams, R. (2013). Business planning considerations for a healthcare simulation center. In A. Levine, S. DeMaria, A. Schwartz & A. Sim (Eds.), *The comprehensive textbook of healthcare simulation*, (pp. 625-632). New York, NY: Springer Science. doi:10.1007/978-1-4614-5993-4_46.

Gardner, A., Lachapelle, K., Pozner, C., Sullivan, M., Sutherland, D., Scott, D.,...Sachdeva, A. (2015). Expanding simulation-based education through institution-wide initiatives: A blueprint for success. *Surgery, 158*(5), 1403-1407. doi:10.1016/j.surg.2015.03.040

Hollema, C. (2015). Faculty development in high fidelity clinical simulation. *International Journal of Nursing Didactics, 5*(9), 1-5. doi:10.15520/ijnd.2015.vol5.iss9.110.01-05

Jeffries, P., Dreifuerst, K., Kardong-Edgren, S., & Hayden, J. (2015). Faculty development when initiating simulation programs: Lessons learned from the national simulation study. *Journal of Nursing Regulation, 5*(4), 17-23. Retrieved from journalofnursingregulation.com

Kardong-Edgren, S. (2015). Initial thoughts after the NCSBN national simulation study. *Clinical Simulation in Nursing, 11*(4), 201-202. doi:10.1016/j.ecns.2015.02.006

Kim, M. & Sunghee, K. (2017). Debriefing practices in simulation-based nursing education in South Korea. *Clinical Simulation in Nursing, 13*(5), 201-209. doi:10.1016/j.ecns.2017.01.008

Knowles, M., Holton, E., & Swanson, R. (2011). *The adult learner*. Burlington, MA: Elsevier.

Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, N.J.: Prentice-Hall.

Laerdal. (n.d.). *SimMan 3G Directions for Use*. Retrieved from Laerdal.com

Larsen, T. & Schultz, M. (2014). Transforming simulation practices: A quest for return on expectations. *Clinical Simulation in Nursing, 10*(12), 626-629. doi:10.1016/j.ecns.2014.09.004

Lazzara, E., Benishek, L., Dietz, A., Sala, E., & Adriansen, D. (2014). Eight critical factors in creating and implementing a successful simulation program. *Joint Commission Journal on Quality and Patient Safety, 40*(1), 21-29. Retrieved from http://www.jointcommissionjournal.com/article/S1553-7250(14)40003-5/abstract

Leighton, K. (2015). Simulation in nursing. In A. Levine, S. DeMaria, A. Schwartz & A. Sim (Eds.), *The comprehensive textbook of healthcare simulation*, (pp. 425-436). New York, NY: Springer Science. doi:10.1007/978-1-4614-5993-4_46

Mullen, P., Kessler, D., & Cheng, A. (2014). Educational opportunities with post event debriefing. *Journal of American Medical Association, 312*(22), 2333-2334. Retrieved from http://jamanetwork.com/journals/jama/article-abstract/2020380

National League for Nursing Simulation Resource Center. (n.d.). *Simulation design template*. Retrieved from sirc.nln.org

Riley, R. (2016). *Manual of simulation in healthcare* (2nd ed.). Oxford, England: Oxford Press.

Rudolph, J., Raemer, D., & Simon, R. (2014). Establishing a safe container for learning in simulation: The role of the presimulation briefing. *Simulation in Healthcare, 9*(6), 339-349. Retrieved from ssih.org

Simon, R., Raemer, D., Rudolph, J. (n.d.). *Debriefing Assessment for Simulation in Healthcare (DASH)*©-Instructor Version, Long Form. Student Version, Short Form. Center for Medical Simulation. Boston, MA. Retrieved from https://harvardmedsim.org

Simon, R., Raemer, D., Rudolph, J. (n.d.). *Debriefing Assessment for Simulation in Healthcare (DASH)*©-Student Version, Short Form. Center for Medical Simulation. Boston, MA. Retrieved from https://harvadmedsim.org

Taplay, K., Jack, S., Baxter, P., Eva, K., & Martin, L. (2015). The process of adopting and incorporating simulation into undergraduate nursing curricula: A grounded theory study. *Journal of Professional Nursing, 31*(1), 26-36. doi:10.1016/j.profnurs.2014.05.005

Zigmont, J., Kappus, L. & Sudikoff, S. (2011). Theoretical foundations of learning through simulation. *Seminars in Perinatology, 35*(2), 47-51. doi:10.1053/j.semperi.2011.01.002

Appendix B: Educator's Interview Protocol

Date: _____ **Participant number:** _____

Place/Setting: _____

Interviewee's initials: _____ **Gender:** M or F (Circle one)

Age Group: 25-34, 35-44, 45-54, 55-64, > 64 (Circle one)

Ethnicity: _____

Current Position Held: _____

Prelicensure Program: Associate Degree, Baccalaureate Degree, or Accelerated Baccalaureate Degree

Length of teaching experience: _____ **Full-time or part-time**

What is your area of clinical expertise:_____

Highest level of education: _____

Courses taught:

_____

How long have you been using simulation as a teaching strategy? _____

Purpose of Study: Therefore, the purpose of this study was to investigate the perceptions and practices of faculty and deans and directors on the implementation of HFS across the nursing curriculum._____ _____

Interview Questions

1. What is your role during simulation?

2. How did you learn about simulation?

3. What type of training have you had to prepare you to use simulation, if any? Was the training useful? Why or why not?

4. What conditions do you perceive as facilitators or what has made it easy for you to use simulation in the courses you teach?

5. What are the barriers to integrating simulation into the nursing course you teach?

6. What resources would you recommend for increasing the integration of simulation into the courses you teach?

7. How would you describe the technical support that is available during simulation?

8. How would you describe the support staff available when you use simulation?

a. What is the ratio between facilitators and students?

b. Who is responsible for setting up and taking down the simulation?

9. How have you implemented the INACSL standards of best practice that have been adopted by the Arizona State Board of Nursing?

10. How would you describe the simulation lab space?
    Sub-questions/prompts as needed:
    a. Is there a simulation suite with observation for the operator?
    b. Are the manikins high-fidelity nearly identical to that commonly used in clinical settings?
    c. Are there audio and video recording and playback capabilities for the learner and faculty?
    d. If students are observing, is there a separate debriefing room and an observation room with access to the recorded simulation?
    e. Is informed consent and confidentiality agreements for the students obtained?

11. How would you describe the debriefing process that you use after a simulation?

Appendix C: Dean Interview Protocol

Current Position Held: _____
(Fill in the blank)

Age Group:

25-34, 35-44, 45-54, 55-64, > 64 (Check one)

Gender:
Male Female

Ethnicity: _____

Highest level of education: _ _____

(Fill in the blank)

Prelicensure program offered
Associate Degree
Baccalaureate Degree
Accelerated Baccalaureate Degree
(Check all that apply)

1. Describe the type(s) of training that have prepared your faculty for simulation.

2. What barriers do you perceive to increasing the use of simulation?

3. What facilitators do you perceive to increasing the use of simulation?

Appendix D Physical Evidence Checklist

Arizona State Board of Nursing Advisory Opinion

Required Physical Resources	**Observation**
Simulation suite with observation/operator space	
Equipment of a fidelity identical or nearly identical to that commonly used in clinical settings	
Audio and video recording and playback capabilities that allow learners and faculty to review performance	
Separate observation room for students with remote video access to the simulation	

Physical Evidence/Documents	**Observation**
Simulation Scenario example	
Simulation Schedule	
Simulation Meeting Minutes	
Physical Resources: IV, Code cart, Wound Care	
Manikins/Fidelity	
Simulation Lab Space	
Online Documentation/Public Data	
Other	

Appendix E: Invitation to Participate

Dear Colleagues,

My name is Sherry Ray and I am a student at Walden University. I am inviting you to participate in a study that I am conducting as part of my Doctoral degree in Education at Walden University. The title of my study is Identifying Faculty Preparedness for High-Fidelity Simulation.

Over the past few years, there has been a steady decline in available clinical space to accommodate the increasing number of nursing students in Maricopa County. Consequently, there has been an increased interest and use of simulation as a substitute for the clinical shortage. However, nursing academia may not be prepared for implementing simulation according to the standards of the International Nursing Association for Clinical Simulation and Learning (INACSL) and the Arizona State Board of Nursing advisory opinion on the use of simulation in approved nursing programs.

Therefore, the purpose of the study is to understand the perceptions and practices of faculty and deans and/or directors on the implementation of high-fidelity simulation across the nursing curriculum. If you decide to participate, you will be asked to meet with me in person, at a mutually agreed upon location or by phone for an interview lasting approximately 60-90 minutes. Participation is confidential and completely voluntary. Below are the inclusion criteria to participate in this study:

- Nursing Faculty: at least six months teaching experience in a prelicensure nursing program and have participated in simulation for student learning to be in the study.

- Nursing Deans or Directors: employed at a prelicensure nursing degree program and presently using simulation in their nursing curriculum to be in the study.

If you are interested in participating in this study, please contact me at XXX-XXX-XXXX or by e-mail at xxxxx@xxxxx.xxx
I look forward to speaking with you and thank you in advance for your assistance in this project.

Sincerely,
Sherry Ray, MSN, RN

Appendix F: DASH IV

Debriefing Assessment for Simulation in Healthcare (DASH) Instructor Version©

Directions: Please provide a self-assessment of your performance for the introduction and debriefing in this simulation-based exercise. Use the following rating scale to rate the "Behaviors" and "Elements." Do your best to rate your ***overall effectiveness for the whole Element*** guided by the Behaviors that define it. If a listed Behavior is not applicable (e.g. how you handled upset people if no one got upset), just ignore it and don't let that influence your evaluation. You may have done some things well and some things not so well within each Element. The Element rating is your ***overall*** impression of how well you executed that particular Element.

Element 1 assesses the introduction at the beginning of the simulation-based exercise. Elements 2 through 6 assess the debriefing.

Rating Scale

Rating	1	2	3	4	5	6	7
Descriptor	Extremely Ineffective / Detrimental	Consistently Ineffective/ Very Poor	Mostly Ineffective / Poor	Somewhat Effective / Average	Mostly Effective / Good	Consistently Effective / Very Good	Extremely Effective / Outstanding

Element 1 assesses the introduction at the beginning of a simulation-based exercise. ***Skip this element if you did not participate in the introduction.***

Element 1 **I set the stage for an engaging learning experience**	**Rating Element 1**
Behavior	**Behavior Score**
A. I introduced myself, described the simulation environment, what would be expected during the activity, and introduced the learning objectives, and clarified issues of confidentiality	
B. I explained the strengths and weaknesses of the simulation and what the participants could do to get the most out of simulated clinical experiences	

C. I attended to logistical details as necessary such as toilet location, food availability and schedule	
D. I stimulated the participants to share their thoughts and questions about the upcoming simulation and debriefing and reassured them that they wouldn't be shamed or humiliated in the process	

Elements 2 through 6 assess a debriefing.

Element 2 **I maintained an engaging context for learning**	**Rating Element 2**
Behavior	**Behavior Score**
A. I clarified the purpose of the debriefing, what was expected of the participants, and my role (as the instructor) in the debriefing	
B. I acknowledged concerns about realism and helped the participants learn even though the case(s) were simulated	
C. I showed respect towards the participants	
D. I ensured the focus was on learning and not on making people feel bad about making mistakes	
E. I empowered participants to share thoughts and emotions without fear of being shamed or humiliated	

Element 3 **I structured the debriefing in an organized way**	**Rating Element**
Behavior	**Behavior Score**
A. I guided the conversation such that it progressed logically rather than jumping around from point to point	
B. Near the beginning of the debriefing, I encouraged participants to share their genuine reactions to the case(s) and I took their remarks seriously	
C. In the middle, I helped the participants analyze actions and thought processes as we reviewed the case(s)	
D. At the end of the debriefing, there was a summary phase where I helped tie observations together and relate the case(s) to ways the participants could improve their future clinical practice	

Element 4 **I provoked in-depth discussions that led them to reflect on their performance**	**Rating Element**

Behavior	Behavior Score
A. I used concrete examples—not just abstract or generalized comments—to get participants to think about their performance	
B. My point of view was clear; I didn't force participants to guess what I was thinking	
C. I listened and made people feel heard by trying to include everyone, paraphrasing, and using non-verbal actions like eye contact and nodding etc	
D. I used video or recorded data to support analysis and learning	
E. If someone got upset during the debriefing, I was respectful and constructive in trying to help them deal with it	

Element 5 **I identified what they did well or poorly – and why**	Rating Element

Behavior	Behavior Score
A. I provided concrete feedback to participants on their performance or that of the team based on accurate statements of fact and my honest point of view	
B. I helped explore what participants were thinking or trying to accomplish at key moments	

Element 6 **I helped them see how to improve or how to sustain good performance**	Rating Element

Behavior	Behavior Score
A. I helped participants learn how to improve weak areas or how to repeat good performance	
B. I was knowledgeable and used that knowledge to help participants see how to perform well in the future	
C. I made sure we covered the most important topics	

Appendix G: DASH SV

Debriefing Assessment for Simulation in Healthcare (DASH) Student Version©

Directions: Please summarize your impression of the introduction and debriefing in this simulation-based exercise. Use the following scale to rate each of six "Elements." Each Element comprises specific instructor behaviors, described below. If a listed behavior is impossible to assess (e.g., how the instructor(s) handled upset people if no one got upset), don't let that influence your evaluation. The instructor(s) may do some things well and some things not so well within each Element. Do your best to rate the ***overall effectiveness*** **for the whole Element** guided by your observation of the individual behaviors that define it.

Rating Scale

Rating	1	2	3	4	5	6	7
Descriptor	Extremely Ineffective / Detrimental	Consistently Ineffective/ Very Poor	Mostly Ineffective / Poor	Somewhat Effective / Average	Mostly Effective / Good	Consistently Effective / Very Good	Extremely Effective / Outstanding

Element 1 assesses the introduction at the beginning of a simulation-based exercise.

Skip this element if you did not participate in the introduction.
If there was no introduction and you felt one was needed to orient you, your rating should reflect this.

Element 1	Overall Rating Element
The instructor set the stage for an engaging learning experience.	**1**

- The instructor introduced him/herself, described the simulation environment, what would be expected during the activity, and introduced the learning objectives.
- The instructor explained the strengths and weaknesses of the simulation and what I could do to get the most out of simulated clinical experiences.
- The instructor attended to logistical details as necessary such as toilet location, food availability, and schedule. The instructor made me feel stimulated to share my thoughts

and questions about the upcoming simulation and debriefing and reassured me that I wouldn't be shamed or humiliated in the process.

Elements 2 through 6 assess a debriefing.

The instructor clarified the purpose of the debriefing, what was expected of me, and the instructor's role in the debriefing.

Element 2 **The instructor maintained an engaging context for learning.**	**Overall Rating Element 2**

- The instructor acknowledged concerns about realism and helped me learn even though the case(s) were simulated.
- I felt that the instructor respected participants.
- The focus was on learning and not on making people feel bad about making mistakes.
- Participants could share thoughts and emotions without fear of being shamed or humiliated.

Element 3 **The instructor structured the debriefing in an organized way.**	**Overall Rating Element 3**

- The conversation progressed logically rather than jumping around from point to point.
- Near the beginning of the debriefing, I was encouraged to share my genuine reactions to the case(s) and the instructor seemed to take my remarks seriously.
- In the middle, the instructor helped me analyze actions and thought processes as we reviewed the cases.
- At the end of the debriefing, there was a summary phase where the instructor helped tie observations together and relate the case(s) to ways I can improve my future clinical practice.

Element 4 **The instructor provoked in-depth discussions that led me to reflect on my performance.**	**Overall Rating Element 4** _____

- The instructor used concrete examples—not just abstract or generalized comments—to get me to think about my performance.
- The instructor's point of view was clear; I didn't have to guess what the instructor was thinking.

- The instructor listened and made people feel heard by trying to include everyone, paraphrasing, and using non-verbal actions like eye contact and nodding, etc.
- The instructor used video or recorded data to support analysis and learning.
- If someone got upset during the debriefing, the instructor was respectful and constructive in trying to help them deal with it.

Element 5 **The instructor identified what I did well or poorly – and why.**	**Overall Rating Element 5**

- I received concrete feedback on my performance or that of my team based on the instructor's honest and accurate view.
- The instructor helped explore what I was thinking or trying to accomplish at key moments.

Element 6 **The instructor helped me see how to improve or how to sustain good performance**	**Overall Rating Element 6** _____

- The instructor helped me learn how to improve weak areas or how to repeat good performance.
- The instructor was knowledgeable and used that knowledge to help me see how to perform well in the future.
- The instructor made sure we covered important topics.

Appendix H: Simulation Checklist for Nursing Programs

NSCBN Guidelines

☐1. The school has created a framework that provides adequate resources (fiscal, human, and material) to support the simulation.

☐2. Policies and procedures are in place to ensure quality- consistent simulation experiences for the students.

☐3. The simulation program has an adequate number of dedicated trained simulation faculty members to support the learners in simulation-based experiences.

☐4. The program has job descriptions for simulation faculty members/facilitators.

☐5. The program has a plan for orienting simulation faculty members to their roles.

☐6. The program uses a needs assessment to determine what scenarios to use.

☐7. The simulation program provides subject-matter expertise for each scenario debriefing.

☐ 8. The program and faculty members incorporate the INACSL *Standards of Best Practice: Simulation.*

☐9. The program has appropriate designated physical space for education, storage, and debriefing.

☐10. The faculty members have a process for identifying what equipment or relevant technologies are needed for meeting program objectives.

☐11. The program has adequate equipment and supplies to create a realistic patient care environment.

☐12. The faculty use evaluative feedback for quality improvement of the simulation program.

☐13. The administration has a long-range plan for anticipated use of simulation in the forthcoming years.

Arizona Advisory Opinion

☐14. If simulation is used for teaching/learning (formative use), a minimum ratio of 1 facilitator per 4-5 student engaging in simulation performance is required.

☐15. If simulation is used as a summative evaluation for an individual student, a minimum ratio of 2 evaluators for each student evaluated is recommend. Evaluations may be conducted by direct observation or by recorded video.

☐16. If simulation observation is part of the experience, a facilitator's presence (in the observation room) is required to assist observing students in focusing on pertinent aspects of the simulation.

☐17. Simulation suite with observation/operator space

☐18. Audio and video recording and playback capabilities that allow learners and faculty to review performance

☐19. If students are observing the performance simultaneously, a separate room with remote video access to the simulation.

☐20. Informed consent and confidentiality agreements for students