



Simulation, A Patient Safety Teaching Strategy that Prepares Bahamian Student Nurses for Tomorrow

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Abstract

A notable concern and issue in nursing education, witnessed world-wide is a lack of coordination between theory and practice. Nursing students and their educators are confronted with numerous challenges in the clinical application of theoretical knowledge. This was a paramount problem during the global coronavirus disease pandemic (COVID-19) in the small island state of the Bahamas and the Caribbean, when the cessation of clinical practicums for nursing students created educational challenges in terms of “hands on” patient care, in a hospital setting. A teaching strategy that could have been employed for small island states such as the Bahamas that replicates real-life clinical experiences is simulation-based education (SBE). In nursing, SBE is an innovative pedagogical approach that has notably enhanced nursing education. As an adjunct for nursing sciences, SBE has been utilised for teaching theoretical and clinical skills, whilst promoting students to think critically. In the context of the Bahamas, SBE would have enabled undergraduate nursing students to perform in an environment that resembled a healthcare setting to gain replicated patient care experiences. Embracing SBE would have provided an experiential learning approach for Bahamian student nurses, which was conducted in a controlled setting to achieve their educational objectives. But it should also be emphasized that SBE also, provides a safe environment for student learning, whilst preventing the risk of potential harm to real patients. This original review article will, therefore, consider, highlight, and endorse low fidelity simulation as a low-cost teaching strategy in nursing education in small island developing states such as the Bahamas.

Keywords: Bahamas; Low fidelity; Nursing, Patient; Safety; Simulation; Student Nurse; Teaching

Introduction

Simulation in healthcare education offers a comprehensive range of endeavours that reveal a comparable rationale, for example, to improve patient safety, undergraduate nurses' skills, and the efficiency, and productivity of healthcare services. Simulation in nursing education is an essential link between classroom learning and real-life clinical experience, which can in effect, narrow the theory practice gap. Nursing is a performance-

based profession where active learning is the preferred method to achieve competence to practice as a registered nurse in all countries [1]. Simulation based education (SBE) is a model that provides evidence for decision-making whilst putting into action those required clinical skills, and then assessing those different clinical skills [2]. The nursing profession globally and therefore, in the small island state of the Bahamas expects and demands clinical skill competency, if not proficiency from their nurses

as practitioners, which is evidence based. The rationale and justification for the employment of SBE as a teaching strategy in nursing education is that simulation increases patient safety by mirroring actual clinical procedures. In doing allows students to practice nursing skills and procedures in an environment that is realistic, but wholly bereft of harm to them and their patients or clients [3]. Fundamental skill procedures, that could be simulated, include insertion of a nasogastric tube (NGT) and feed delivery, or insertion of an indwelling urine catheter (IDUC) and catheter security, or insertion of a peripheral intravenous cannula (IV) and administering an IV medication. Suctioning of a tracheostomy tube (TT). However, all fundamental “basic” skills have safety concerns in an actual clinical setting for both the patient and the student nurse.

Baring these safety concerns in mind, simulation, therefore, offers an educational choice for educators to apply theoretical concepts and develop new skills in their nursing students. In addition, for an opportunity that allows students to critically reflect on their clinical practices and receive feedback concerning their quality of care and patient safety initiatives. Simulation based education also offers a psychological inducement as it decreases the students’ performance anxiety, while increasing their self-confidence and their critical thinking capacity [4]. For example, a Bahamian undergraduate student nurse when performing a simulation skill that utilizes a low fidelity mannequin (Figure 1) “a patient” that requires a NGT feed as prescribed by the dietitian. Through low fidelity simulation and intervening according to the scenario provided by the nurse educator, the student demonstrates knowledge and skills that illustrate. 1. Demonstrating effective hand hygiene prior to the procedure. 2. Informing the patient as to the procedure. 3. Assessing the correct placement of the NGT prior to infusing any tube feeds as per organisation policy. 4. Checking location of external markings on the tube and colour of the pH tape of fluid aspirated from the tube. 5. Aspirating any residual volume to ensure absorption of the previous feed. 6. Connecting the prescribed NGT feed and infusing at the prescribed rate. Practice with clinical simulation and evaluation will allow the student to ensure the correct placement of the tube and reduce the risk of potential aspiration, thereby improving patient safety and the student’s critical thinking skills.



Figure 1: Low fidelity mannequin with a nasogastric tube. Sourced Healthy. Simulation.com stock images March 2023.

Background

Amid the academic concerns that were generated by the COVID-19 pandemic in the small island state of the Bahamas, was the interruption of clinical practicums for nursing students which created educational challenges in terms of “hands on” patient care, in a hospital setting. A teaching strategy that could have been employed for small island states such as the Bahamas that replicates real-life clinical experiences was SBE. These are clinical requirements for students which could not be fulfilled through theoretical options [1]. The COVID-19 pandemic therefore, dramatically impeded nursing students to connect with patients and other healthcare professionals (HCP) [5] had to address the clinical practicum gaps that were created by COVID- 19.

From the author’s personal experiences, the COVID-19 pandemic had a major impact on the approach and to the delivery of clinical nurse training programs in higher education at the University of the Bahamas in small island state of Nassau, Bahamas. The global “stay-at-home” directives, recommendations and guidelines launched on March 19th, 2020, were an attempt to prevent the transmission of the coronavirus disease [6]. Genuine concerns related to the Bahamas university faculty and the student nurses’ safety were at the forefront regarding the COVID 19 pandemic [7]. To guarantee university faculty and the students’ safety, academic institutions, had to relocate all theoretical classes,

meetings, and face-to-face discussions into virtual environments [7,8]. With the escalation of the COVID-19 disease, schools of nursing also had to exempt students from attending clinical wards and adopt educational strategies to involve them in online patient assessments and monitoring [7]. Experiences in other countries also revealed that nursing students could not fulfil their practicum obligations despite their presence in hospital wards at the onset of COVID-19 pandemic because there had been inadequate supplies of personal protective equipment (PPE) available. This created an urgent need for tertiary educators to transform, adapt and adopt a method of “onsite” training delivery to resolve the adverse impact on clinical education and training for their undergraduate nursing students.

Because of the global practicum restrictions, in the United Kingdom (UK), the Nursing and Midwifery Council (NMC) authorised 300 hours of simulated training within the 2300 practical learning hours for clinical practice, when it was not feasible to venture onsite [9]. The rationale for the NMC directive was that the simulation hours were an effective operational substitute for clinical learning and training which continued to support nursing students in their studies [10].

Similar, SBE strategies were not available or endorsed in small island states of the Bahamas, at that time [11].

Nevertheless, this NMC and RCN directive presented noteworthy challenges for nursing faculty in higher education, both in terms of resources and laboratory capacity, availability of qualified educators and trainers to teach and certify that nursing students were clinically competent to provide safe effective evidence-based care to their patients. Clinical education, as a practicum is the foundation of nursing education, as it allows students to apply their theoretical knowledge to care delivery for patients [12]. As an educational process, it provides students with an opportunity to attend the patient’s bedside, progressively extends their experience and expertise, and utilizes critical thinking to implement the nursing process for patient challenges that they encounter. However, in the post COVID-19 pandemic era, nursing schools remain increasingly challenged to provide high-quality clinical experiences for students, and SBE continues to offer an invaluable alternative learning experience that replicates clinical ones.

Simulation based education and the notion of critical thinking as a term has been used interchangeably with concepts in the nursing process, problem solving, evaluation, critical analysis, judgement, reflection, and reasoning. The term “critical” originates from the Greek word *kritikos*, which means “ability to judge or distinguish”. The foundations of critical thinking ask, who, what, when, why, define, clarify, describe, relate, explain, justify and what if?

Therefore, a student nurse, can with exposure to SBE is provided with an opportunity to practice and acquire essential critical thinking skills which are lacking [13]. Critical thinking, not only answers questions, but also questions the answers, by way of several thought processes, such as creativity, reflection and analytical thinking and skills such as probing, and judging. In doing so, SBE as an educational strategy provides a student nurse with an opportunity to gain confidence, become a safe and autonomous practitioner which improve patient safety and quality care [13].

Nursing education has emphasized critical thinking as an essential nursing skill for more than 65 years [14]. “Behind every healed patient is a critically thinking nurse” (Anon). Critical thinking in nursing is an indispensable component of professional accountability and quality nursing care, exhibiting elements such as, confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection [15].

The process of critical thinking can be enhanced with SBE, as it requires the application of knowledge and skill experience to identify patient problems to direct clinical judgements and actions that result in positive patient outcomes. Simulation is therefore a crucial strategy in small island states such as the Bahamas and Caribbean for modelling an undergraduate nurses’ professional identity. Schools of nursing are therefore expected to be updated with the latest teaching strategies and technologies to demonstrate their leadership and management skills. In doing so, they can provide high-quality approaches that foster and develop students and ultimately their allied tertiary organizations [16]. In the domain of healthcare services, the schools of nursing must be prepared to deal with unique challenges related to their responsibilities and roles in fostering the next generation of clinically competent nurses [17].

What is the philosophy pertaining to simulation theory?

The main objective of education for nurses is the acquisition of knowledge with correct application for competence. As a teaching strategy, simulation has gained increased acceptance and popularity, and has challenged nurse educators to diverge from the time-honoured didactic teaching methods. Employing a simulation platform as an education strategy is compatible with a pedagogical philosophy which reinforces and underpins the current education approach for undergraduate nursing students. The simulation practice experience in nursing education is personified by a setting that is safe, practical, realistic, interactive, collaborative and learner centred [18]. Reinforced by experiential learning theory, simulation permits undergraduate nursing students to engage with a realistic situation, observe and reflect on their performance or that of their peers, and consider past, present, or even future experiences [19].

To construct a simulated environment that is positive and productive requires trust, and faith in the educational approach from both the facilitator and the participant. This enhances the quality of the simulation experience through “buying in” as a “stakeholder” of the imitated experience [18]. A simulation session should create a dynamic collaboration between the facilitator and the learner/s, whereby the facilitator provides constructive comments in the form of prompts, during the simulated exercise and followed by a debriefing discussion at the conclusion of the simulation experience [18]. This approach as a teaching strategy ultimately promotes student engagement, interaction, and psychological commitment and conformity within the simulation experience [20].

What is a simulation scenario model?

Simulation is a model that represents the process of an existing or proposed system, such as for the insertion of an NGT. The simulation process employed by the facilitator could suggest, recommend, or demonstrate evidence for decision-making by experimenting with different scenarios. For example, there are two types of NGT tubes are in common use, the single-lumen tubes, Ryle’s tube, and the double-lumen sump, Salem’s sump tubes. The single-lumen tubes are best for decompression, but are often employed for feeding, while the double-lumen sump tube is best for continuous lavage or irrigation of the stomach. What is the process of inserting a nasogastric tube? A feasible simulation scenario could require the student to estimate/measure the correct length of the NGT (Figure 2).

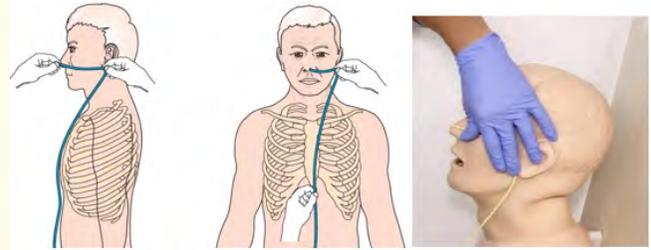


Figure 2: A model for simulation to estimate the correct insertion length for an NGT.

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Then the student may be required to introduce the NGT into the “patient’s” nostril, and gradually advance it toward the nasopharynx with the curved end pointing downward. When the end of the NGT passes the nasopharynx, have the “patient” flex their head forward and advance the NGT to the desired measured distance.

What is “fidelity” in simulation?

Fidelity in simulation is a multi-dimensional concept corresponding to the degree of realism created through the selection of the simulation equipment, the setting, and the scenario [21].

Fidelity also denotes the degree of realism and accuracy that is achieved in the simulation and parallels to the authenticity of the experience and during the simulation application [22]. Therefore, fidelity proposes that learner skills and attitudes which are acquired in a training program, can be transferred to the work environment. Fidelity in simulation has by tradition been defined as “the degree to which the simulator replicates reality” [23], and by means of this definition, simulations are then characterized as either “low” or “high” fidelity subject to how accurately they represent the “real life” situation being taught or assessed.

What is “low fidelity” in simulation?

Low fidelity simulations (LFS) involve imitating a tangible action required in the scenario but leaves out factors that the user might experience in a real-life situation. For example, when being taught Basic life support (BLS), effective chest compressions are an essential skill to master and be demonstrated by BLS providers in the accreditation process (Figure 3). Low fidelity simulation

focuses on the required skill, such as chest compressions, but may lack factors, such as cold, pale, sweaty skin or airway obstruction from regurgitant vomit, that make the scenario feel most like the real world. Despite being basic, low-fidelity patient simulations are an indispensable teaching strategy for schools of nursing, as they promote skill acquisition, without exposing “real” patients to unnecessary risk.



Figure 3: A low fidelity mannequin for BLS chest compression practice.

Sourced Laerdal Medical.com March 2023.

What is “high fidelity” in simulation?

A high-fidelity healthcare simulation is any scenario that reproduces an actual patient scenario to a high level of realism, they make every effort to be as realistic as possible and are all-encompassing of physical, environmental, psychological, and other components. For example, an Advanced Cardiac Life Support (ACLS) resuscitation scenario, which requires the actions of a team approach to provide effective life support (Figure 4).



Figure 4: A high fidelity mannequin for ACLS scenario practice.

Sourced Laerdal Medical.com SimMan March 2023.

HFS involve the use of high-tech mannequins that can be programmed to display a varied range of patient disorders. For example, in ACLS, life threatening dysrhythmias such as ventricular tachycardia, ventricular fibrillation and asystole must be identified and managed according to evidence based algorithms. High-

fidelity patient simulations have also become essential for schools of nursing, as they promote skill acquisition, facilitate development of clinical judgment, and teach students about multifaceted clinical situations with realistic cases, all without subjecting “real” patients to harm and unwarranted risk.

Technology and innovation in nursing education includes clinical skill development for undergraduate students to learn and become competent at performing safe and effective quality patient care. When the Bahamas School of Nursing opened in 1987 anatomical models of organs, such as the heart, eye and lungs were donated by the British High Commission. In 2008 the Rotary International service organization donated five computerized SimMan® (Figure 4) Laerdal advanced practitioner simulation mannequins for the clinical practicum tutorial rooms on the University of the Bahamas, Grosvenor Close Campus [24]. Unfortunately, after 14 years of neglect, these high-fidelity simulation mannequins are no longer functioning and are often utilised as low-fidelity alternatives.

What is the “better” type of simulation fidelity?

A simulation question, that is often a quandary in the research literature, relates to the benefit of one method “low” over the other “high” [25]. Low or high-fidelity simulation which approach would be more appropriate to advantage undergraduate nurses in terms of learning and acquisition of skills. Research has revealed that the approach to simulation is determined by the requirements of the individual profession [25]. In undergraduate nursing education, the preference is LFS as it benefits “novice” nurses to become competent with specific skills [26]. Despite the value of HFS, the main shortcoming for using HFS in an undergraduate nursing program is that HFS is more intensive, and permits less slip-ups, oversights, and errors, and therefore places additional psychological stress on the student. On these grounds, it is my recommendation, that for undergraduate nurses at a first to third year level, it would be of greater benefit to commence with an LFS. Followed by the gradual advancement towards HFS for nurses, such as those enrolled in a complex nursing course at a fourth-year level.

What is the rationale for simulation in Nursing?

Among the trends in nursing education, providing more experiential learning opportunities for students includes

simulation technology which benefits nursing students to become more proficient in real-life clinical situations [27]. Diminished prospects for clinical placements, combined with patient safety issues, such as the COVID 19 pandemic and ethical concerns, which involve confidentiality issues has also resulted in a reduction of clinical opportunities for direct experience with patient care [28]. Therefore, simulation should be viewed as a complementary educational strategy that provides nursing students with the potential to practice their clinical and decision-making skills through various real-life situational experiences.

Progressive opinions for the engaging simulation in Nursing

Nursing schools in small island states such as the Bahamas are also increasingly challenged to deliver high-quality clinical experiences for their nursing students, due to the limited access to hospitals and student-patient ratios and placement availability. Simulation based education can asan alternative provide beneficial learning experiences that imitate clinical encounters [12]. The evidence-based literature supports the vision that SBE with purposeful practice can achieve specific clinical goals relating to patient care and safety. The National League of Nursing has acknowledged that simulation can be exchanged for up to 50 percent of conventional clinical experiences [29]. Guidelines and quality measures for simulation programs have also been advocated by the International Nursing Association for Clinical Simulation and Learning (INACSL) founded in 2003 and by the Society for Simulation in Healthcare (SSH), established in 2004. These organizations, declare that simulation creates transformational learning experience for all nursing students and provides diverse perspectives on caring for patients across the continuum of care [29-31]. The numerous advantages of utilizing simulation as an educational strategy include safety, as it does not place a patient or student at risk or in harms' way and reduces the requirement for clinical sites. Simulation offers standardization for patient scenario cases, providing tangible feedback pertaining to the skill, and allows the skill to be repeated until the student achieves competency, even mastery. Additional incentives are that it encourages critical thinking, which facilitates students to assimilate knowledge and experiences. The National Council of State Boards of Nursing [32] maintains that there are many advantages of simulation over actual clinical experience. These include, that it is safe and respectful for patients, offers reduced

training variability and promotes standardization, which can be modified for individualized learning. Yet, also offers the opportunity to practice atypical and more complex events. The NSCBN [32] give a positive response that simulation is rightly student- centred, with a focus on experiential learning, that allows immediate feedback, instead of impassive learning. It also acknowledges independent critical-thinking and decision-making, and delegation, and offers opportunities for students to make and learn from mistakes.

Conflicting opinions for the practice of simulation

The main disadvantage of simulations from the author's perspective, is that they aren't the "real thing", and that students may react differently when faced with situations in the "real world". For example, an undergraduate student in a "real" clinical setting could be inserting an NGT, when the "real" patient begins to gag, cough, splutter, or become upset. An inexperienced student nurse is more likely to panic in that situation and be affected by the outcome [4]. Academiccontentions also state that SBE can be expensive, especially with high-fidelity technology [33].

However, the author contends that LFS should be considered as a viable alternative to HFS, especially in developing countries, such as the small island states of the Caribbean. Additional, limitations that are often expressed are that SBE cannot replicate all the elements of a clinical situation, and that they require faculty that are skilled to implement it effectively [27]. Also, reflect and consider that simulations scenarios must be effective, or they may cause students to learn theskill erroneously [34].

A culture of safety

The goal of a culture of safety is to reduce the risk of harm to patients and HCP [35,36].

However, despite a global transparent culture of safety, there has been nominal awareness focused on incorporating the culture of safety into the education of HCP and remains a threat to patient safety. Nurses need to be well-informed about patient safety and comprehend how knowledge, skills, and attitudes promote the utilization of safety science which leads to higher quality patient care. Primum non nocere "above all, do no harm" is considered a fundamental ofhealth care practice, however, the IOM landmark report of 2000, To Err is Human, revealed thathospitalized patients

are not safe [35]. The disturbing escalation in morbidity and mortality among hospitalized patients amplifies concerns about HCP competence. Nurses and other HCP are under increased inquiry to deliver safe and effective care, as are nursing education programs to ensure nurses are competent to provide safe patient care.

Current strategies in nursing education utilize both didactic and clinical factors which are instrumental in defining critical thinking and clinical decision making for learners; these methods of health training do not however expose practitioners to errors in clinical judgment or practice. A teaching strategy that promotes critical thinking, clinical decision making, use of psychomotor skills; and provides immediate feedback, is patient simulation-based training. The American Nurses Association (ANA) standards state that the nursing process, assessment, diagnosis, outcome identification, planning, implementation, and evaluation serves as a critical thinking model that promotes a competent level of care [37]. Critical thinking is like any skill, everyone can improve by gaining insight, acquiring instruction and feedback, and practicing skill development utilising simulation strategies.

Advancing the concept of safety awareness

Safety is defined as freedom from psychological and physical injury; and all health care organizations comprise of many physical and psychological factors that influence or affect the life of a patient [38]. A safe environment reduces the risk for illness and injury, improves or maintains the patients' functional status, and increases the patients' sense of well-being. The Joint Commission International (JCI) is a United States-based organization that accredits health care organizations and programs. The JCI declared mission is to continuously improve health care for the public, in collaboration with other stakeholders, by evaluating health care organizations and inspiring them to excel in providing safe and effective care of the highest quality [38]. Susceptible patient groups who often require assistance in achieving a safe environment include infants, children, older adults, the unwell, the physically and mentally challenged, and the illiterate. When a patient is cared for within a health care facility, risk assessment is mandatory to determine if any potential hazards exist in the care environment. The care environment in which nurses provide treatment to patients can determine the quality and safety of patient care. As

principal HCP, nurses apply their knowledge, skills, and experience to care for the various and changing needs of the patient. To do so, nurses need to possess certified competencies that reflect the nature of nursing in improving patient outcomes, including evidence-based practice for safety and quality improvement (Lake, 2002), prior to commencement in clinical practice. In the IOM report, *To Err is Human: Building a Safer HealthCare System*, simulation training was recommended as an educational strategy for patient safety. The report states that health care and teaching organizations should participate in the development and use of simulation for practitioner training [39].

Can simulation reinforce patient safety and the nurse's role as a patient advocate?

The Nurses Association of the Commonwealth of the Bahamas's vision for 2025, is that nurses will be fundamental advocates as stakeholders to advance optimal health and wellbeing for the people of the Bahamas [40]. Therefore, in a veritable culture of safety, all healthcare organizations in the small island states, whether with academic or practice orientations, must be committed to patient safety. Regardless, the patient being a paediatric or geriatric; cared for in day clinic or in an intensive care unit; ensuring that the patient receives safe, evidence-based care is an ongoing challenge [42]. Emphasizing and applying the important aspects of safety within the patient care environment can be simulated in a clinical skills laboratory using Bloom's revised taxonomy, cognitive (knowledge), psychomotor (skills) and affective (attitude). This supports student nurses to achieve higher levels of competence. For example, during any course that a student nurse is undertaking, the learner should have acquired new knowledge, and attitudes about the patient. Patient safety and medication errors are an ongoing global concern [38], therefore medication administration employing the 5 rights is an important lesson that student nurses must learn. The practical association for the newly acquired knowledge, regarding the 5 medication rights could be reinforced within a simulation laboratory in which the student nurse must demonstrate competency with low fidelity simulation to prevent medication errors. The major advantage of simulation as an educational strategy in nursing education is that it provides learners with an opportunity to make clinical care judgments, make mistakes, even medication errors without apprehension of repercussions to themselves or harming a real patient.

Does nursing education have a role in patient safety?

Nursing is a knowledge-based profession and a nurse's ability to be a critical thinker and to use acquired knowledge in the delivery of nursing care is essential to patient safety. When preparing the nurse of "tomorrow", nursing education has an important role to provide knowledge, develop skills and attitudes of our future nurses. In addition, fundamental to patient safety is the dynamic interaction between clinical practice and theory, which if conjoined, narrows the theory - practice gap. The gap between what nurses do and do not know about patient safety needs to be closed. Simulation for undergraduate nurses is an essential tool that ensures students develop, and maintain their knowledge, skills, and expertise so that safe, quality patient care is provided. Patient safety is an issue that should be continuously emphasised in all nursing programs and clinical practice [41]. As stated previously, traditional nursing education relies on linguistic intelligence and rote memorization; however, in contrast, a well-designed patient simulation program emphasizes multiple intelligences and is learner centred. In the IOM report, *To Err is Human: Building a Safer Health Care System*, recommended simulation training as a strategy to improve patient safety. The report stated that health care organizations should use simulation for HCP training [35]. Patient simulation is a technique that provides controlled guided experiences, whilst replicating actual aspects of the real world in a fully interactive manner, thereby allowing the student nurse to "put it all together" prior to a real patient experience. Building adaptation and innovation of skills within the learner in the complex health care environment supports learning utilising Bloom's taxonomy, which assists nurses to achieve higher levels of competence. The major advantage of using patient simulation as an educational stratagem in nursing is that it provides an opportunity for active and interactive learning without risk to a patient. Learners are permitted to make errors without fear of harming a real patient [23].

Is there a valid link between simulation and patient safety?

Patient safety is the absence of preventable harm to a patient during the process of health care and is fundamental to high quality care which emphasizes global areas of healthcare practice.

Patient safety is described as increasing the healthcare events that are correct and reducing those identified as medical errors [39]. The strategy proposed by the NHS and IOM, emphasised the need to

build and strengthen a patient safety culture by taking a systems-based approach to understanding and improving patient safety [36]. One of the key recommended components was simulation as a patient safety strategy and as an academic prerequisite in tertiary curricula [35]. The application of SBE provides nurses, whether undergraduate and graduate with the opportunity to appraise practices of care with consideration to human dynamics relevant to health care.

Academic studies have underscored the realisation that SBE improve nursing students' critical thinking skills, by providing an opportunity to problem-solve and practice multifaceted skills in a non-threatening environment. Simulation allows for the creation of scenarios that combine the theory and practice with consideration of a diversity of human factors that forge the clinical setting. When reflecting on impact of simulation for patient safety, it is imperative to consider the simulation strategy that permits undergraduate students to "practise before doing". This diminishes the students' stress and increases their confidence with their experiences with a "real patient" [43], as it removes any risk of harm to a patient as there is no "real patient" participating.

Justification for using simulation for skills in undergraduate nursing

The following skill scenarios will be reviewed using the SBAR acronym, Situation, Background, Assessment and Recommendation to highlight three real events, out of many which have been observed personally and required intervention by the author within the numerous clinical settings in his career. You, the reader can decide whether simulation is an effective alternative to the realism that can "only" be provided by a "real" patient.

Skill 1: Inserting a nasogastric tube (NGT)

- **S:** The actual patient was an unresponsive male that had sustained a stroke with a Glasgow Coma Score of 7/15. A NGT was inserted by the nurse into the right lung and was not checked for accurate positioning in the stomach. The NGT feed was administered, as prescribed by the dietitian which resulted in a chemical pneumonitis and ultimate death of the patient.
- **B:** Dysphagia is common after stroke, so feeding through a NGT will often be required.

- **A:** These tubes must be inserted precisely or else there can be disruption to feeding and hydration, and potential aspiration of feed or fluids into the lungs.
- **R:** Practice inserting a nasogastric tube with a low fidelity mannequin followed by skill assessment and competency validation prior to NGT associated patient care (Figure 5).



Figure 5: Practice inserting a nasogastric tube with a low fidelity mannequin or with a real patient.

Sourced Healthy. Simulation.com stock images March 2023.

Skill 2: Inserting a Foley’s indwelling urinary catheter (IDUC)

- **S:** The actual patient was a male with postoperative urine retention, a severely distended bladder which was causing 10/10 abdominal pain on a numerical rating scale. A Foley’s size FG 12 indwelling urine catheter (IDUC) was prescribed by the physician and inserted by the nurse. But prior to inflating the IDUC balloon with 10 mills of sterile water, the catheter was not checked for accurate positioning in the bladder. This resulted in severe urethral trauma, copious bleeding, complete obstruction within the urethra, and insertion of a suprapubic catheter.
- **B:** Being unable to pass urine after surgery is particularly common in older people, so insertion of an IDUC will often be required.
- **A:** These catheters must be inserted correctly into the bladder or else there is a potential for the balloon to be inflated in the urethra and cause severe trauma, bleeding, and pain to the patient.
- **R:** Practice inserting an IDUC with a low fidelity mannequin followed by skill assessment and competency validation prior to IDUC associated patient care (Figure 6).

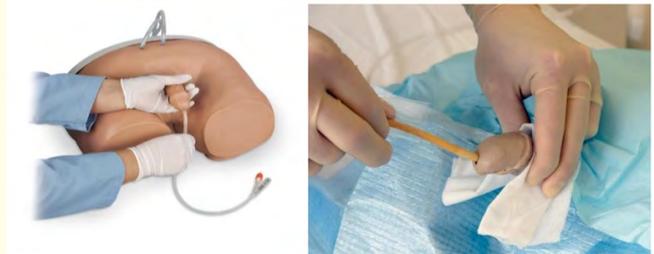


Figure 6: Practice inserting a urine catheter with a low fidelity mannequin or with a real patient.

Sourced Healthy. Simulation.com stock images March 2023.

Skill 3: Suctioning a tracheostomy tube (TT)

- **S:** The patient was a male with respiratory insufficiency, related to a COVID19 community acquired pneumonia (CAP), that required a tracheostomy tube (TT) to keep his airway clear of thick secretions which he could not cough up. A size 12 suction catheter was inserted by the nurse into the TT, without the procedural preoxygenation of 100% and an incorrect technique and duration for suctioning which was excessive. The outcome of this inaccurate procedural skill was that the patient became distressed, hypoxic and had a respiratory arrest.
- **B:** A frequent sign and symptom of CAP may include the production of thick purulent mucus which patients may not be able to cough and remove effectively. This may sometimes necessitate the creation of a tracheotomy and insertion of a TT for the purpose of suctioning to keep the airway clear.
- **A:** Suctioning a TT is a skill that must be performed accurately, otherwise the potential for patient harm could be life threatening.
- **R:** Practice suctioning a TT with a low fidelity mannequin followed by skill assessment and competency validation, prior to TT associated patient care (Figure 7).

Discussion

Nursing as a profession, is both a science and art which represents a highly significant and integral part of the health care



Figure 7: Tracheostomy suctioning practice with a low fidelity mannequin or with a real patient.

Sourced Healthy. Simulation.com stock images March 2023.

system in the Bahamas. Nurses and their education and training are fundamentals that ensure the effectiveness of the small island state health care system. The use of simulation as an educational strategy in nursing in the context of the small island states exemplifies a significant challenge for nursing education in the Bahamas. If SBE can improve health care and patient safety, then it sure be employed, as indicated in the evidence-based literature. No patient should ever be put at risk or in harm's way if simulation can provide an educational strategy for undergraduate nurses to learn. SBE, with standardization of scenario cases, promotes critical thinking, allows supervision of patient care, provides immediate feedback, and helps students to assimilate knowledge and experience. It is an ideal model which provides a comprehensive learning experience, in a controlled learning environment for undergraduate nurses in the Bahamas. Undoubtedly the greatest change in nursing education globally and in the small island states, since the COVID19 pandemic is the introduction of virtual simulation and subsequently SBE. Continuation and development of virtual simulation and SBE constitutes a focal point for nursing science and for the progress of nursing students.

However, this requires the investment of resources for the establishment and maintenance of simulation laboratories in schools of nursing, allocated time for simulation in the academic curricula, faculty educators who are appropriately educated and trained to create the various scenarios and operate simulators. But most importantly, the support and endorsement for SBE by the Nursing Boards within the small island states.

Conclusion

The mission of the profession of nursing in small island states such as the Bahamas and the Caribbean is to provide safe, evidence-based high-quality care to patients because all patients regardless of religion, culture, age, and gender are entitled to safe, quality care. Nurses as HCP, whether students or graduates must be patient advocates and as such promote and provide safe patient care. Health care patient dynamics are complex and involve care processes, sophisticated technologies, and therapeutic interventions. There are vast challenges for nursing educators to advance the quality and safety of patient care within health care organizations. These challenges include ensuring clinical nurse practitioner competence and the subsequent promotion of patientsafety. The objective of nursing education in the Bahamas is therefore, multidimensional, which includes the attainment of evidence-based knowledge, and the acquisition of clinical skills, which are essential for graduate nurses transitioning into the workforce. Integrated learning, critical thinking, and optimal decision-making skills are a mandatory requirement for nurses to provide safe, high-quality care. The vision of the profession of nursing is to reduce the "Theory Practice Gap" and improve patient safety outcomes. This can be achieved through the inclusion of simulation in the education process. Patient simulation whether "Low or high" fidelity is a multidimensional concept, which utilizes exciting technology in nursing education; a teaching strategy that promotes critical-thinking, clinical-decision making, use of psychomotor skills; which also provides immediate feedback, and the integration of behavior, knowledge, and clinical practicum. Student learners are exposed to patient care scenarios regardless of the nursing specialty without fear of harming a real patient. Through simulated practice educators can support students in applying theoretical concepts, developing their skills, and critically reflecting on existing approaches. This can be achieved within a health care environment that is safe and supportive for students and for the patients they will be supporting in the in the future. Further developments of simulation as a strategy will be of immense assistance as students evolve into successful HCP.

Key Points

- Simulation proposes the prospect for educators to amalgamate theoretical concepts with practical skills in their nursing students.

- Simulation permits students to critically reflect on their clinical skills and receive feedback from educators regarding the quality of care and patient safety issues.
- The use of simulation technology nurse education creates innovative experiential learning environments.

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