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Tammy Schwaab

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Clinical Simulation Training to Increase Medical Surgical New Graduate Registered Nurse (NGRN) Confidence and Competence When Caring for Deteriorating Patients: A Quality Improvement Project

Tammy Schwaab BA, MS, RN, CHSE

Duquesne University

Comments: I have reviewed this manuscript. I approve this manuscript to be submitted to Duquesne Library repository.

Manjulata Evatt
Dr.Manjulata Evatt DNP,MSN,RN,CMSRN
Faculty Mentor
Abstract

Problem: Patient harm from preventable cardiac arrest continues despite implementation of Rapid Response Teams (RRT) in the hospital setting. Medical surgical NGRNs lack adequate practice experience to prepare themselves with the competency skills necessary to manage high acuity patients in a complex healthcare environment. An awareness of a lack of readiness for practice leads to low NGRN self-confidence. Deficiencies in NGRN self-confidence and clinical competence lead to an inability to recognize and respond to patient complications with subsequent ineffective use of the RRT. Failure to Rescue (FTR) is one of the top three medical errors committed by NGRNs. Current evidence supports additional education on deteriorating patients within the residency period using clinical simulation training (CST). Purpose: The purpose of this project is to increase NGRN self-confidence and clinical competence when caring for deteriorating patients using CST embedded within a NGRN hospital residency program. Methods: This quality improvement (QI) project focused on delivery of a pre-scenario educational module and deteriorating patient simulation experience with structured debriefing to medical surgical NGRNs. Results: Knowledge, satisfaction, and self-confidence scores increased post-project. Post-project competence scores did not meet minimum expected requirements. However, participants reported increased self-awareness of deficiencies and opportunities for improvement leading to enhanced assessment skills and clinical judgement. Conclusions: Clinical simulation can increase NGRN self-confidence and competence by offering practice and self-reflection leading to improved outcomes for deteriorating patients.

Keywords: recognition of deteriorating patient, new graduate registered nurse, clinical simulation, confidence, competence, rapid response
Clinical Simulation Training to Increase Medical Surgical New Graduate Registered Nurse Confidence and Competence When Caring for Deteriorating Patients: A Quality Improvement Project

“Failure to Rescue,” the inability of nurses and doctors to identify and respond to patient deterioration, has been recognized as a global health issue (Duff et al., 2018b). The Agency for Healthcare Research and Quality (AHRQ) defines FTR as “a failure or delay in recognizing and responding to a hospitalized patient experiencing complications from a disease process or medical intervention” (Hall et al., 2020). Ineffective recognition with a lack of timely activation of the RRT within one hour from the onset of deterioration contributes to increased cardiopulmonary arrests, intensive care unit (ICU) admissions, and increased mortality rates (Astroth et al., 2013; Barwise et al., 2015; Norris et al., 2019; Stayt et al., 2015; Vincent et al., 2018). The resulting outcomes from FTR have costly impacts in terms of patient lives and hospital finances with some sources stating an indirect cost of 19 billion dollars per year (Mushta et al., 2018). As many as 75% of Americans with cardiac arrest do not recover, and a majority of these patients exhibit signs of deterioration hours or days prior to an arrest state demonstrating these outcomes are largely preventable (Allen, 2020; Astroth et al., 2017; Brekke et al., 2019; Burke et al., 2022; Cooper et al., 2017a; Daly et al., 2007; Ratta, 2016; Lavoie et al., 2015; Morrison et al., 2013; Mushta et al., 2018).

A large body of research is dedicated to identifying FTR causes and solutions. Since nurses are often the first healthcare providers to detect deterioration and provide intervention, they are central to understanding FTR. Novice nurses are uniquely implicated in FTR. This is attributed to their lack of preparation for clinical practice with low self-confidence and clinical competence. Acute care environments are equally important as the nature of these units increase
the likelihood that FTR will occur. While many solutions have been suggested, targeted education through experiential learning appears to be the most critical. Clinical simulation offers a nurturing learning environment where the new nurse can develop confidence and competence to support quality clinical practice.

**FTR as a Nursing Sensitive Indicator**

Nurses dedicate 35% to 46% of their time at patients’ bedsides (Hurst, 2010). As a result, FTR is considered a nursing sensitive quality indicator when nurses fail to identify patients at risk, fail to communicate concerning findings, or choose appropriate patient rescue interventions (Burke et al., 2022; Herron, 2018; Mushta et al., 2018). Medical surgical NGRNs are of particular concern as they lack confidence and competence which contribute to their higher rates of medical error (Kiernan, 2018). Preventable medical error is the third leading cause of death in the United States behind cancer and heart disease and accounts for up to 400,000 deaths per year (Orique & Phillips, 2018). Within their first year of practice, NGRNs are involved in half of these preventable errors with medication errors, patient falls, and FTR listed as the top three errors (Kiernan, 2018).

**The Acute Care Environment**

The acute care environment is where a majority of FTR events occur (Allen, 2020; Hart et al., 2014a). Patients are at greater risk of deterioration as modern healthcare is characterized by high patient acuity due to multiple co-morbidities, advanced age, extensive reliance on technology, increased specialization, and nursing staffing shortages (Clayton, 2019; Fawaz et al., 2018; Norris et al., 2019; Willman et al., 2020). Nurses who practice on acute care floors manage multiple patients at one time and experience many interruptions and distractions (Walshe et al., 2021). Medical surgical unit patient monitoring is infrequent with less access to monitoring
equipment and medical providers (Vincent et al., 2018; Walshe et al., 2021). The nature of current practice is seen as a barrier to the recognition of patient deterioration.

**Medical Surgical NGRN Self-Confidence and Clinical Competence**

It is evident that NGRNs enter practice lacking the technical and non-technical skills necessary to manage the current healthcare environment and require additional education to achieve clinical competence (Hickerson et al., 2016). New nurses lack self-confidence as a result of the “Academic to Practice Gap” and feel unprepared for the realities of clinical practice (Hickerson et al., 2016; Ortiz, 2016). This realization leads to anxiety, moral distress, and a high turnover rate of new nurses in the first two years following licensure. As many as 60% of new nurses leave their positions prior to completion of their first year of practice which has a tremendous impact on hospital orientation costs (Hickerson et al., 2016). Deteriorating patients are considered “high stakes” for new nurses, and NGRNs view their performance with these situations as an assessment of their progress toward becoming a qualified nurse (Ratta, 2016). Without sufficient practice experiences, the novice nurse lacks the self-confidence, knowledge, communication, and clinical judgment skills necessary to appropriately recognize and rescue the deteriorating patient.

**Experiential Learning Through Clinical Simulation**

Providing clinical simulation experiences is a proven strategy to assist new graduates to develop the clinical judgement necessary to recognize and care for deteriorating patients. The National Council of State Boards of Nursing (NCSBN) and the National League for Nursing (NLN) support the use of clinical simulation to provide a safe learning experience where high-risk patient situations can be practiced deliberately and repetitively (Kiernan, 2018). Evidence continues to emerge that simulation increases NGRN self-confidence while caring for declining
NEW GRADUATE NURSE PATIENT DETERIORATION SIMULATION

patients (Ackermann et al., 2007; Beyea et al., 2010; Bolling et al., 2017; Bricker & Pardee, 2011; Crowe et al., 2018; Duff et al., 2020a; Herron, 2018). New graduate self-confidence is required to apply clinical competence to patient care (Ulrich et al., 2010). This suggests that a lack of self-confidence impairs or hinders clinical performance. Research has shown that simulation can also increase NGRN clinical competence when caring for deteriorating patients by minimizing the barriers that prevent new nurses from activating the RRT (Boling et al., 2015; Connell et al., 2018; Cooper et al., 2016b, 2017a; Driscoll, 2018; Duff et al., 2018b; Kindl et al., 2017; Norris et al., 2019; Orique & Phillips, 2018; Orique et al., 2019).

A Focused Quality Improvement Project

A Maryland community hospital identified the need to incorporate clinical simulation training within its NGRN residency program targeting care of the deteriorating patient. The NGRNs at this facility participate in a 12-month residency program, however, prior to this project the hospital did not use CST or provide additional deteriorating patient education. A simulation program was chosen as an appropriate intervention based on the hospital’s need to initiate use of simulation within the residency program and as a result of the literature synthesis conducted by the project champion supporting its use with NGRNs to enhance care of deteriorating patients. The targeted purpose of this quality improvement project was to increase the self-confidence and clinical competence of medical surgical NGRNs within their first year of practice through use of clinical simulation on the deteriorating patient.

Literature Review

The Johns Hopkins Evidence Based Practice Model

The Johns Hopkins Nursing Evidence-Based Practice Model was used to assist this project’s translation of evidence into practice (Dang, 2018). This model emphasizes questioning,
research on the best available evidence, and implementation of innovative strategies to improve clinical practice. This project followed the steps of the model to include the practice question, evidence, and translation. Tools provided, such as the evidence appraisal guideline, the individual evidence summary table, the synthesis of evidence, and the recommendation tool were used to organize the evidence. A literature search was conducted using the following keywords: recognition of deteriorating patient, new graduate registered nurse, clinical simulation, confidence, competence, and rapid response.

The primary areas of focus for this literature review were NGRN self-confidence, clinical competence, and clinical simulation in relation to FTR and deteriorating patient care. After review of the evidence three themes emerged indicating the complexity and multifactorial nature of this problem. The first theme focused on the factors leading to a lack of preparation of NGRNs for clinical practice. A second theme related to barriers and facilitators to effective recognition and response to deterioration experienced by nurses and NGRNs specifically. The final theme included recognized evidence-based solutions for FTR. The primary focus of this project was clinical simulation used as a strategy to increase NGRN self-confidence and clinical competence when caring for deteriorating patients.

Factors Leading to a Lack of NGRN Clinical Competence

Clinical Judgment

Clinical judgement is defined as “an interpretation or conclusion about a patient’s needs, concerns, or health problems, and/or the decision to take action (or not), use or modify standard approaches, or improvise new ones as deemed appropriate by the patient’s response” (Tanner, 2006). Management of deteriorating patients requires nurses to possess clinical competence and self-confidence. Competent nursing care uses a combination of critical thinking, clinical
reasoning, and clinical judgment. Critical thinking is a cognitive process used to analyze knowledge based on evidence and science while clinical reasoning is “the cognitive and metacognitive processes used for analyzing knowledge relative to a clinical situation or specific patient” (Victor-Chmill, 2013). Critical thinking is required to clinically reason and both are required for sound clinical judgment. A lack of clinical experience impacts these abilities in NGRNs.

**Situational Awareness**

Situational awareness is another theme identified in the literature as important to understanding how nurses recognize and respond to patient deterioration (Orique et al., 2019). This concept has been defined by Endsley & Garland (2000) as “a conscious awareness of the current situation in relation to the environment.” Three levels of situational awareness exist. The first level is perception of cues, determined by an individual’s experience level and environmental factors such as workload. Experience is required to be able to detect informational cues. Heavy nursing workloads may impact this detection as nurses do not have the time to properly assess or pay attention to their patient’s signals. The second level of situational awareness is comprehension. Comprehension is the interpretation of cues and their relevance to the situation at hand. The final level is projection. This refers to anticipation of how cues will impact future events. Situational awareness develops as nurses gain practice experience and is required to enable nurses to recognize and respond to patient deterioration.

**“Academic to Practice Gap”**

Pre-licensure nursing educational programs target student acquisition of needed skills; however, many clinical nurse leaders feel graduates are not practice-ready nor able to make sound clinical decisions (Huston et al., 2018; Monagle et al., 2018). The strategic practice
analysis by the National Council of State Boards of Nursing found that 46% of tasks completed by NGRNs were related to clinical judgement and 30% were related to problem-solving and critical thinking (2018). A variety of factors are associated with NGRNs lack of preparation for the healthcare practice environment. Both academic and clinical educators prioritize understanding the nature of NGRN transition.

Herron (2018) conducted a descriptive phenomenological study which identified that the quality and quantity of educational clinical experiences led to an inability of NGRNs to manage deteriorating patients. One factor identified was students not being given the opportunity to make clinical decisions independently. For patient safety, clinical instructors must heavily supervise nursing student practice, and this support may impede NGRN ability to view a holistic picture of patient care (Herron, 2018). It was reported that clinical groups were too large to allow for sufficient learning opportunities, and there was a lack of experience with deteriorating or emergent patients due to the focus of clinicals and orientation being on stable patients (Herron, 2018). This lack of experience impeded the development of student clinical reasoning ability necessary for managing patient deterioration. Graduates in this study indicated they did not develop clinical reasoning until they gained on the job experience (Herron, 2018).

It is also recognized that NGRNs lack the necessary exposure to clinical practice which would enable them to understand the “big picture” of a patient’s clinical situation and allow them to respond with appropriate actions (Benner, 2001; Chua et al., 2019; Herron, 2018; Odell et al., 2009; Purling & King, 2012; Purling & King, 2012). Experiential learning is the basis for the development of clinical reasoning (Dreifuerst, 2012; Levett-Jones et al., 2010). Academic and clinical nursing educators can use simulation training to offer additional practice experiences that
have the potential to link knowledge to practice, improve clinical reasoning, and, therefore, clinical judgment in the NGRN.

**Barriers to Effective Recognition and Response to Clinical Deterioration**

**Organizational Culture and Low NGRN Self-Confidence**

Low NGRN self-confidence is reported in the literature and linked to a lack of experience and feelings of inadequacy in practice (Herron, 2018). In addition to a lack of experience, organizational factors may play a role in NGRN low self-confidence. Research described low self-confidence as a barrier to RRT activation due to the fear of reprimand, looking foolish, or past negative interactions with condescending members of the healthcare team leading to hesitance in future communications (Berman et al., 2014; Burke et al., 2022; Chua et al., 2017; Clayton, 2019; Herron, 2018; Massey et al., 2017; Nibbelink & Brewer, 2018; Odell et al., 2009; Purling & King, 2012). Finally, new nurses face an overwhelming workload in conjunction with lack of appropriate staffing (Chua et al., 2019). These deficits lead to a focus on achieving patient care tasks to the detriment of holistic patient assessment impeding NGRN ability to recognize a deteriorating patient (Chua et al., 2019; Herron, 2018; Massey et al., 2017; Odell et al., 2009; Purling & King, 2012).

**Vital Signs and Nursing Assessments**

Many research studies describe incomplete nursing assessments, inaccurate assessments, or inappropriately delegated assessments to unlicensed assistive personnel leading to unidentified deterioration. Vital signs are a key patient assessment when attempting to recognize deterioration in its early stages (Brekke et al., 2019). Vital data for identifying early deterioration include blood pressure, respiratory rate, heart rate, oxygen saturation, urinary output, and mental status (Allen, 2020). Deficits in this area occur with regard to nursing knowledge, attitudes, and
practice, and are also impacted by the individual and organizational factors identified previously in this paper.

Nurses believed blood pressure was an early indicator of deterioration; however, it is a relatively late sign due to compensatory mechanisms (Allen, 2020). Allen (2020) also found that nurses believed respiratory rate was not important, but respiratory rate changes may be the earliest sign of deterioration (Flenady et al., 2017; Mushta et al., 2018). When respiratory rates are documented, they may only be accurate 37% of the time as staff may not count for a full 30 or 60 second interval (Vincent et al., 2018). Allen (2020) found that respiratory rates were often not counted but instead estimated. Flenady et al. (2017) indicated that even a modest difference in the patient’s respiratory rate of either four breaths per minute above or below the normal adult rate of 12-20 was associated with increased patient mortality. Flenady et al. (2017) also stated to obtain an accurate measurement, the respiratory rate should be counted for a full 60 seconds, an uncommon nursing practice.

Vital signs may be viewed as ritualistic and time-consuming leading to inadequate documentation in the medical record (Allen, 2020). Attitudes among nursing staff contribute to inadequate assessment leading to a lack of deterioration identification. These mindsets may contribute to a lack of documented vital signs in the medical record (Stevenson et al., 2016). A theme identified across many studies was that vital signs are often delegated to unlicensed nursing staff or licensed practical nurses who may not have the clinical knowledge to understand the meaning of trends in these values (Allen, 2020; Chua et al., 2019; Mushta et al., 2018). Accurate data is required to identify deterioration and prevent untoward outcomes. Inaccurate vital signs may be recorded by nursing support staff resulting in false results, or support staff may not report abnormal values to the registered nurse. Inappropriate delegation occurs when
registered nurses do not follow up on the assessments performed by Patient Care Technicians or Licensed Practical Nurses.

While some nurses may feel vital signs are not a valuable use of their time, others may overly focus on them rather than conducting complete and holistic nursing assessments (Chua et al., 2019). Hart et al. (2016b) echoed this finding and stated that deterioration is missed when vital signs are used as the only basis for determination of patient status. It has also been reported that nurses may see some assessments, such as abdominal palpation, lung, and heart auscultation as the role of the physician despite learning these skills in nursing school. Hart et al. (2016b) also assert that assessment and intuition, gained through clinical experience, are necessary to recognize the subtle signs of deterioration. Chua et al. (2019) found that intuition, used by more experienced nurses, is often used to detect deterioration prior to altered clinical patient findings. Brier et al. (2015) state NGRNs track vital signs only, while experienced nurses use vital signs in addition to comprehensive assessments. To recognize deterioration early, nurses must conduct complete head to toe nursing assessments.

**Not Knowing the Patient**

Studies have shown nurses often miss patient deterioration as a result of not spending time with their patients, a lack of continuity of care, or knowing the patient’s medical history (Chua et al., 2019; Hart et al., 2016b; Large & Aldridge, 2018; Massey et al., 2017; Nibbelink & Brewer, 2018; Odell et al., 2009; Purling & King, 2012). These studies recommend nurses retain assignments shift-to-shift to promote familiarity with patients for better identification of deterioration. Nurses may also miss the cues of patient decline due to a lack of knowledge of disease process or pathophysiology. This knowledge would assist with expected patient presentations as well as the ability to predict potential courses of action (Large & Aldridge,
2018). This leads to a recommendation for nurses to specialize to better understand disease pathophysiology and trajectory for enhanced detection of complications (Large & Aldridge, 2018).

**Equipment**

Another barrier to recognition may be a lack of familiarity with, or an over reliance on, equipment (Massey et al., 2017). Purling and King (2012) found specifically that novice nurses missed deterioration and attributed this to a lack of confidence, clinical experience, and an overuse of vital signs and equipment. Nurses highly value pulse oximetry and may use these readings over respiratory rates when determining a patient’s condition (Flenady et al., 2017). Research has shown that pulse oximetry accuracy may be impacted by a variety of factors, such as the patient’s circulation, skin color, use of nail polish, and skin temperature (Seifi et al., 2018). Nurses may also miss the subtle changes in a patient’s clinical status when overly focused on patient care monitors rather than focusing on holistic patient assessments (Powel-Cope et al., 2008).

**Communication**

Once the nurse recognizes that a patient is experiencing a complication, actions must be taken to rescue the patient from harm. This may consist of independent nursing interventions and seeking advice and support from other healthcare providers. Escalating care of these patients may be the “frailest link in the chain of survival” for a variety of reasons (Mushta et al., 2018). Non-technical skills assist nurses in responding to patient complications including leadership ability, situational awareness, and communication skills documented as lacking in NGRNs (Massey et al., 2017).
A recurrent theme identified by research is poor communication between medical and nursing staff preventing escalation of care (Astroth et al., 2013; Chua et al., 2019; Kindl et al., 2017; Large & Aldridge, 2018; Martland et al., 2016; Massey et al., 2017; Mushta et al., 2018; Norris et al., 2019; Orique et al., 2019; Purling & King, 2012; Walker et al., 2021). Specifically, Liaw et al. (2011) found that nursing reports to providers incorporated extraneous and irrelevant information which led to an inability to convey the severity of the patient’s situation. Martland et al. (2016) found that nurses did not use a structured communication format when escalating care and that their communication was haphazard and lacked prioritization. It has also been recognized that nurses frequently notify the physician first delaying activation of the RRT (Astroth et al., 2013; Norris et al., 2019).

**Evidence-Based Solutions for Failure to Rescue**

Research describes a variety of solutions for FTR, all with variable success. A combination of approaches most likely are required for such a multifactorial and complex problem. These solutions include early warning scoring systems, patient monitoring systems, dedicated Rapid Response Teams, implementing changes to organizational culture, communication, and educational strategies, which include clinical simulation.

**Early Warning Scores**

Early warning scores (EWS) allow nursing staff to record vital signs and other assessment parameters, such as level of consciousness, into a scoring system which can categorize the patient’s level of illness severity and trajectory (Saab et al., 2017). Some systems trigger a response once a specific score is met. These systems, while good predictors of cardiac arrest and death, have not demonstrated improved patient outcomes (Burke et al., 2020; Vincent et al., 2018). Burke et al. (2022) found that EWSs are more important than high scores of a
singular vital sign parameter in determining adverse outcome patient risk. Burke et al. (2022) also found that clinical staff do not value use of EWSs and may only use them after a patient has already been recognized as deteriorating. This solution requires nursing staff to collect patient data and enter it into a track and trigger chart, which when incomplete, will impact the success of this strategy (Allen, 2020). The system also fails when data is not placed into the electronic record in a timely manner.

**Patient Monitoring Systems**

Increased patient monitoring can lead to better recognition of patient deterioration. Some research has demonstrated that increased monitoring of at least twelve times per day led to a 50% lower FTR (Burke et al., 2022; Mushta et al., 2018). With advancing technology in modern healthcare, many automatic electronic patient monitoring systems are being developed to provide early indicators to staff of patient decline. These devices may be able to activate or automatically trigger a response for escalation of patient care. Allen (2020) found that continuous monitoring on medical surgical floors allowed for earlier detection of deterioration. Medical surgical units traditionally implement patient monitoring every four hours and patient status could deteriorate between these observations. Both nurses and doctors express that more frequent monitoring can lead to earlier detection of patient decline and support interdisciplinary communication, however, they express concern that it could also lead to less patient-nurse interaction and patient discomfort (Prgomet et al., 2016).

**Rapid Response Teams**

Rapid response teams are comprised of specially trained healthcare providers (respiratory therapists, critical care nurses, medical providers) who manage patient emergencies on medical surgical units to prevent ICU admissions and cardiac arrests (Astroth et al., 2017; Vincent et al.,
2018). The Institute for Healthcare Improvement (IHI), The Joint Commission, and National Institute of Health (NIH) have jointly called for use of RRTs to improve patient safety, yet there is inconsistent evidence on the effectiveness of RRTs in improving patient outcomes and wide variation in how they are implemented across hospital settings (Astroth et al., 2017; Hall et al., 2020; Parker, 2014; Vincent et al., 2018). Factors considered critical to the success of RRT use include specific criteria for activation, availability of units where a patient can be transferred to a higher level of care, if needed, staff training, addressing the organizational issues preventing activation, and data collection and analysis to improve processes (Duff et al., 2020a; Vincent et al., 2018).

While nurses value RRTs, they may not always use them even when there are clear signs of patient decline (Astroth et al., 2017). Physicians and experienced nurses activate RRT more often than inexperienced nurses (Astroth et al., 2017; Salamonson et al., 2006). This is attributed to novice nurses being less confident in calling RRT for help, not recognizing they need help to manage the patient, or being intimidated by expert nurses (Astroth et al., 2017). One study found that nurses who held an associate degree required more prompting to activate the RRT; however, a different study found no difference in educational level, suggesting that hospital orientation and training may equalize NGRN RRT activation practice (Astroth et al., 2017). This finding suggests hospital education should include training on RRTs and deteriorating patient management. The Astroth et al. (2017) study also found that nursing knowledge of RRTs improved organizational culture and team dynamics which allowed for more frequent use of RRT. Organizational culture and hospital education, therefore, has a large impact on activation and use of RRT.
Culture and Communication

Ratta (2016) found that a supportive community of nurses using a team approach can assist NGRNs to develop professionally to improve their care of deteriorating patients. Massey et al. (2016) found that acute care nurses require support to recognize deterioration, and lack of familiarity with other team members led to a delay in response. Hospital cultures which are hierarchical in nature may delay the recognition and response to deterioration and lead to increased FTR rates (Burke et al., 2022). The Burke et al. and Massey et al. reviews suggest that a flattened hierarchy where open communication and collaboration is encouraged as a potential solution. Many studies advocate for use of standardized communication tools such as situation-background-assessment-recommendation (SBAR) that can assist in an escalation of patient care (Bruke et al., 2020; Burgess et al., 2020; Clayton, 2019; Liaw et al., 2011; Massey et al., 2016; Norris et al., 2019).

Education and Clinical Simulation

Education has been identified as a critical factor underlying the ability of nurses to recognize and respond to patient deterioration (Allen, 2020; Clayton, 2019; Huston et al., 2018; Massey et al., 2017). The overarching goal of clinical simulation education is to improve the quality and safety of healthcare practice (Bruce et al., 2019). Simulation is defined as “a technique that creates a situation or environment to allow persons to experience a representation of a real event for the purpose of practice, learning, evaluation, testing, or to gain an understanding of systems or human actions” (Terminology and Concepts Working Group, 2020).

Orique and Phillips (2018) conducted a meta-analysis to synthesize the evidence on pre- and post-licensure nurses’ ability to recognize and respond to deterioration and found that simulation positively affects knowledge and performance. Simulation as an educational strategy
has been shown to improve nursing knowledge, communication, and confidence when caring for deteriorating patients (Bell-Gordon et al., 2014; Boling & Hardin-Pierce, 2015; Bruce et al., 2019; Crowe et al., 2017; Elder, 2017; Norris et al., 2019; Ratta, 2016). Simulation allows for repetitive practice in a realistic but safe learning environment (Bruce et al., 2019) and assists the transfer of knowledge and skills into professional practice (Clayton, 2019). It also allows for the development of skills which are critical to recognize patient deterioration and increase nurses’ situational awareness (Walshe et al., 2021).

Schubert (2012) showed an improvement in medical surgical nurses’ knowledge of FTR events and critical thinking skills following simulation. In addition, Huston et al. (2018) found that simulation can be successfully used in practice to bridge the gap between academia and the realities of the healthcare environment. Certainly, simulation is an active and student-centered learning strategy which assists novice nurses to develop clinical judgement (Huston et al., 2018). The Kindl et al. (2017) study demonstrated a decrease in the time it took senior year pre-licensure nursing students and NGRNs to recognize and respond with appropriate interventions to a patient deterioration scenario using a simulation intervention. Reported findings were retention of confidence, competence, and prioritization skills three months post-simulation.

Additional research findings have direct implications for hospital educators. Clayton (2019) found that clinical simulation in conjunction with a preceptorship produces the greatest benefits for NGRN practice. Simulation provides experiential learning while a preceptorship provides the needed mentorship and support to translate the experiential learning into practice. Another finding of interest is that hospitals frequently focus on education and training for cardiopulmonary arrest situations while neglecting to educate nurses on declining patients (Hart et al., 2014a). Targeted nursing education should focus on improving the NGRN’s ability to
recognize the early signs of deterioration by using visual tools and a systematic process for assessment, such as ABCDE (airway, breathing, circulation, disability, exposure) (Clayton, 2019; Stayt et al., 2015). Use of these tools is appropriate for novice clinicians who are described as “rules based and task oriented” (Benner, 2001; Chua et al., 2019).

A second recommendation is to educate nurses to use a structured format to communicate patient needs such as SBAR and Identify-Situation-Background-Assessment-Recommendation (ISBAR) (Burgess et al., 2020; Clayton, 2019; Norris et al., 2019). Simulation is an appropriate method for practicing SBAR communication in a safe learning space. Finally, education should be provided on learning how to activate the RRT using a formal escalation policy while following activation criteria and policy details (Clayton, 2019; Liaw et al., 2011; Norris et al., 2019). These recommendations can be used to design a CST to improve NGRN practice.

**Intervention Rationale**

The hospital employs a year-long, standardized residency program and preceptorship model for NGRN education and orientation. It does not currently capture FTR rates or use an EWS or patient monitoring system. Due to COVID-19 related staffing deficits, it is not feasible to implement minimum registered nurse (RN) staffing models. The literature search described in this paper indicates that nursing education is a critical recommendation to improve the recognition and response of patient deterioration and incorporation of a CST would enhance the existing residency program. In addition, the facility desired to initiate a simulation program with the assistance of the expertise of the project champion in both simulation and working with nursing students and NGRNs. At the time of project initiation, no additional education on deteriorating patients nor clinical simulations were conducted with staff other than mock cardiac arrest codes. Key research recommendations described in this paper were incorporated into an
Educational Module to be used as pre-simulation scenario preparation to educate nurses on deteriorating patients, structured assessment tools, RRT activation criteria and policies, and ISBAR.

**Project Description**

The purpose of this QI project is to provide a CST to improve the self-confidence and clinical competence of medical surgical NGRNs when caring for deteriorating patients.

**Project Aims**

- **Aim #1**: Examine the underlying causes for a lack of NGRN recognition and response to deteriorating patients.
- **Aim #2**: Implement a Plan Do Study Act (PDSA) Cycle of Clinical Simulation Training (CST).
- **Aim #3**: Evaluate the effectiveness of CST in improving NGRN self-confidence and clinical competence when caring for deteriorating patients using the Student Satisfaction and Self-Confidence in Learning Instrument (SSSCLI) and the Creighton Competency Evaluation Instrument (C-CEI).
- **Aim #4**: Provide a sustainable plan to continue the CST in the NGRN residency program.

**Project Objectives**

- **Objective #1**: Collect baseline data through anonymous needs assessment questionnaires administered to NGRNs, RRT staff, unit administration/educators on the factors involved in a lack of NGRN recognition and response to deteriorating patients.
- **Objective #2**: Analyze quantitative and qualitative data collected.
Objective #3: Develop a structured CST based on INACSL Standards of Best Practice and identified factors.

Objective #4: An online preparatory educational module will be completed by all NGRNs prior to participation in the CST.

Objective #5: Provide an opportunity for all NGRNs to participate in a deteriorating patient simulation scenario at month one and again at month three of residency.

Objective #6: All NGRNs will complete one to two simulation sessions on recognizing and responding to deteriorating patients.

Objective #7: Examine the findings to determine NGRN self-confidence and clinical competence in recognizing and responding to deteriorating patients.

Objective #8: Evaluate NGRN self-confidence before and after implementing CST as measured by the SSSCLI.

Objective #9: Evaluate NGRN clinical competence after each simulation session as measured by the C-CEI.

Objective #10: Evaluate NGRN focus group feedback post CST using thematic analysis to measure the effectiveness of simulation in developing clinical judgment.

Objective #11: A structured CST based on INACSL Standards of Best Practice will be in place for future use in the NGRN residency program.

Methodology

Setting and Population

This QI project took place at a 220-bed acute-care medical surgical community hospital in Maryland. Medical surgical nurses (N=16) with less than one year of experience were invited to participate. The project was approved by the Institutional Review Board. There were no
ethical considerations or conflicts in implementing this QI project. Participants were chosen to participate based on their enrollment in the hospital residency program and signed an agreement to voluntarily participate (Appendix A).

Models and Frameworks

PDSA Framework

A Plan-Do-Study-Act (PDSA) framework was used to guide the project as a problem-solving model. This popular framework for quality improvement initiatives allows for testing a change intervention on a small scale to determine if there was an improvement (Institute for Healthcare Improvement, n.d.). The Agency for Healthcare Research and Quality (n.d.) outlines the steps to guide the QI process. The first step is to “Plan” the change by determining what will be tested, what the project desires to produce or measure, and what steps and timeframes will be required to produce the desired outcomes. The next phase of this process is to “Do” or implement the intervention. Observations occur within the “Study” phase by considering the results observed during the implementation part of the cycle. This is where it will be determined if the aims and objectives of the intervention have been met. The final stage of the PDSA cycle is to “Act” on what was learned to determine next steps in the QI process (Appendix B). This process is initially implemented on a small scale and then repeated in subsequent cycles following refinement based on what is learned (Institute for Healthcare Improvement, n.d.).

Benner’s Novice to Expert Theory

Patricia Benner’s Novice to Expert Theory (2001) supports experiential learning and can be used to understand why NGRNs have difficulty recognizing and responding to patient deterioration. According to Benner, novice nurses use universal, context-free rules to guide their actions since they lack experience with patient care situations. This theory states that knowledge
is created through experience over time and applies The Dreyfus Model of Skill Acquisition to nursing. In Dreyfus’s Model, nurses progress through five stages of clinical competency: novice, advanced beginner, competent, proficient and expert (Pena, 2010). Newly graduated nurses are usually in the advanced beginner stage; however, COVID-19, may have impacted current NGRN clinical experience exposure potentially creating a regression or stagnation of their progress through these stages. Dreyfus states that advanced beginners lack situational awareness since their attention is focused on specific patient aspects and attributes which are treated separately and are all given equal importance (Pena, 2010). As nurses progress through Benner’s novice to expert stages by gaining clinical experiences and/or education and training, they become better able to distinguish salient from irrelevant patient cues and attach meaning to them (Orique et al., 2019).

The National League for Nursing (NLN) Jeffries Simulation Theory

The NLN Jeffries Simulation Theory can be used as an evidence-based framework to properly plan, implement, and evaluate simulation interventions to attain the best outcomes (Jeffries, 2012; Jeffries et al., 2015). This theory guides the nurse educator to design simulation training in a stepwise fashion and includes six core elements: context, background, design, educational practices, simulation experience, and outcomes. This theory, in congruence with the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice Simulation, will assure that the CST is conducted with high quality and integrity. As the leading nursing specific simulation professional organization, INACSL states that use of these standards “...demonstrates a commitment to quality and implementation of rigorous evidence-based practices in healthcare education to improve patient care” (INACSL, n.d.). The Standards of Best Practice relevant for this project include professional development, pre-
briefing, simulation design, facilitation, debriefing, operations, outcomes and objectives, professional integrity, and evaluation of learning and performance (INACSL, n.d.). Following the criteria within each of these standards will ensure optimal outcomes of the CST.

**Implementation**

The implementation of this project occurred over four months between February 2022 and May 2022. A detailed project timeline is outlined in Appendix C. Contact with NGRNs was planned for convenience of the staff and would occur on days when they were already on the hospital campus for their pre-scheduled monthly residency day.

**Measurement Tools**

*The NLN Student Satisfaction and Self-Confidence in Learning Instrument (SSSCLI)*

Satisfaction and confidence of NGRNs were assessed using the SSSCLI (Appendix D). This instrument includes 13 questions which use a 5-point Likert scale where a score of one indicates strong participant disagreement while a score of five indicates strong agreement. Five items assess satisfaction with learning while the remaining eight items measure the level of confidence both before and after an intervention (National League for Nursing, n.d.-b). A tool was required which assessed participant satisfaction with simulation as an instructional method and confidence levels following participation in a CST. This questionnaire was chosen as it assesses both measures of interest and is a widely used tool in nursing education promoted by the National League for Nursing (NLN). It has been demonstrated to be both valid and reliable for educational studies (Franklin et al., 2014; Unver et al., 2017). The instrument was a free download from the instrument repository on the NLN website (NLN, n.d.-b).
The Creighton Competency Evaluation Instrument (C-CEI)

Competency of NGRNs was measured by the C-CEI (Appendix E), a tool used to evaluate the behavioral performance of simulation participants (Creighton University School of Nursing, n.d.). The C-CEI measures competence for twenty-three behaviors grouped into the four categories: assessment, communication, clinical judgment, and patient safety. This measurement tool was chosen because it is widely used in simulation and has been described by research as reliable and valid (Hayden et al., 2014). The instrument was originally developed for use in the large National Council of State Boards of Nursing (NCSBN) National Simulation Study and deemed appropriate for evaluating competence within simulation and traditional clinical environments (Hayden et al, 2014). The project champion was trained to collect and score data through a free, online instructional training video. Permission was granted to use the instrument by completing an online consent and terms of agreement and use form.

Pre-intervention

Needs Assessment

A pre- and post- intervention design was used in this QI project. In the months preceding project implementation, stakeholders were identified including the project champion; a pre-licensure nursing program faculty member and a certified healthcare simulation educator, the project champion’s faculty mentor, medical surgical NGRNs within their first year of practice, a medical surgical unit nursing director, a medical surgical clinical nursing educator, and members of the rapid response team. The first aim of the project was to understand the scope and causes of FTR by NGRNs at the clinical facility. This was achieved by surveying project stakeholders. Baseline data was collected from three anonymous needs assessment questionnaires created by the project champion using Microsoft Forms. A questionnaire was administered to NGRNs to
include five demographic questions with ten additional questions on NGRN confidence and competence when caring for deteriorating patients (Appendix F). A ten-item questionnaire was administered to RRT staff to gain their perspectives on NGRN strengths, deficiencies, and needs (Appendix G). Finally, a third questionnaire was developed and administered to clinical nursing educators, NGRN preceptors, and unit administrators (Appendix H). This was a five-question assessment targeting the opinions and perspectives of nursing leadership. Data was collected on perceptions of NGRN readiness and strengths and deficiencies when caring for deteriorating clients. This data was used to understand the scope of the clinical problem and to support the design and development of project interventions.

**Pre-Project Implementation Pilot**

Prior to implementing the scenario with NGRNs at the clinical facility, a pilot test was conducted with four pre-licensure nursing student volunteers two months prior to graduation from an associate degree program. This allowed the project champion to identify items requiring revision prior to “going live” and helped to ensure validity and fidelity of the CST. Pilot testing is a simulation best practice recommended by INACSL’s Simulation Design standard (INACSL Standards Committee, 2016a). Students were asked to complete a pre-pilot questionnaire similar to the NGRN needs assessment (Appendix I). Student volunteers were also asked to complete a pre-intervention SSSCLI to assess satisfaction with prior simulation learning experiences and perceptions of confidence regarding care of deteriorating patients. Following completion of the pilot session the students were asked to complete the Simulation Design Scale (Appendix J) and a post-session Student Satisfaction and Self-Confidence in Learning Instrument. The Simulation Design Scale collects information on the perspectives of participants regarding the objectives, support, problem-solving, feedback, guidance, and fidelity of the simulation scenario’s design.
and implementation (National League for Nursing, n.d.-a). Following review and analysis of this data, the project champion modified one scenario medication considered less realistic for this scenario.

**Interventions**

**Educational Module**

A preparatory Educational Module was created using Microsoft PowerPoint and delivered to participants in project month one. Time was not allocated in the residency program schedule to administer the education in-person; therefore, it was delivered to participants electronically through email as it was designed to be an interactive PowerPoint module with active links and videos. The project champion was able to provide a cursory preview of the education with the NGRNs during a project orientation held at the facility. The intent of this module was to provide education on patient deterioration and prepare NGRNs to participate in the simulation scenario and apply their learning to the simulated clinical experience. Module content was chosen based on evidence and recommendations found within the research literature and the student learning objectives. Topics included background on the clinical problem of FTR, situational awareness, recognizing and analyzing patient cues, deterioration response, standardized communication, roles and responsibilities, resources, facility RRT activation policy and procedure, and deterioration case studies. The expectation was for NGRNs to complete the education independently since the residency schedule did not allow for in-person education. A seven-question knowledge pre-and post-test was embedded within this PowerPoint to assess if learning occurred (Appendix K).
Simulation Session

A subacute cardiac tamponade was chosen as the clinical condition of the deteriorating patient since this is a medical emergency requiring timely activation of the RRT to rescue the patient. It was also a request from stakeholders who conducted a root cause analysis to investigate a FTR involving a prior patient with cardiac tamponade. Several previously written simulation scenarios were researched and reviewed, however, none fit the needs of this project so a custom scenario was developed.

Once the scenario was designed, content experts were consulted to provide an appraisal of the case scenario to assure content validity. These clinical experts included two nursing faculty, a physician’s assistant, an intensive care unit physician, a rapid response nurse, and a cardiovascular nurse practitioner. Additionally, the project champion asked the hospital educator, four expert academic educators, and one expert rapid response nurse to appraise the expected behavioral criteria to determine competence of the NGRN participants during the scenario. A simulation technician from the project champion’s school of nursing was consulted and brought to the project facility to set up and operate the high-fidelity manikin. Details for this case scenario were planned using the NLN Simulation Design Template (National League for Nursing, n.d.-a) (Appendix L).

The case scenario was a 71-year-old male client admitted to the telemetry unit with heart failure exacerbation and pleural effusion who after the initial 15 minutes of care would have a change in clinical condition as the result of cardiac tamponade. Due to time limitations, simulation logistics, psychological safety rules, and other orientation information were delivered through email 24 hours prior to the simulation session. On the day of the simulation, a 15-minute pre-briefing was held where the NGRNs were given clinical report and access to the patient
chart. The project champion prompted the NGRNs to consider relevant patient data, priorities of care for nursing assessment and intervention, and potential complications which could occur. Care was assigned to a primary and secondary nurse after drawing role cards randomly. The remaining participants observed the scenario and documented on an observer form (Appendix M) which provided cursory prompts on what to examine.

The nursing team provided care to the simulated patient for a total time of 25 minutes. Expected nursing actions within the first ten minutes were to wash hands, provide introductions, identify the patient using two identifiers, maintain patient safety, and conduct an initial head to toe assessment with a full set of vital signs and a finger stick blood glucose reading. Upon the change in client condition, the nurses were expected to do an ABCDE assessment with activation of the RRT and begin patient rescue with prioritized interventions. Priority interventions included positioning the patient in Semi- to High-Fowlers, applying a non-rebreather mask, and holding blood pressure medication which may have not yet been administered due to hypotension. The scenario ended with the nurse providing an ISBAR to the RRT critical care nurse.

The clinical judgement of NGRN participants was evaluated by observing their actions within the scenario as well as their statements during the debriefing. It was expected that the NGRNs would hold intravenous fluids after assessment of fluid overload, prioritizing further assessment of patient intake and output and to administer furosemide. Recognition and interpretation of relevant clinical cues upon the change in client condition was expected. This included altered level of consciousness, patient hypotension, tachypnea, tachycardia with muffled heart sounds, decreasing pulse oximetry, increasing oxygen requirements, lung auscultation progressing from crackles to rhonchi bilaterally, delayed capillary refill time, and
chest pain. It was expected that NGRN participants could provide evidence-based rationale for their process of prioritization and decision-making. This would include the rationale for decisions on priority assessments and interventions and identification of the assessment cues which met criteria from the hospital RRT activation policy. All expected nursing behaviors are detailed in the Creighton Competency Worksheet (Appendix N).

A 50-minute debriefing was conducted by the project champion immediately following the scenario. This debriefing was structured using the theory-based Debriefing for Meaningful Learning method (Dreifuerst, 2012). Socratic questions were posed to the NGRNs to elicit the underlying drivers for decision-making throughout the scenario to uncover assumptions, biases, and misconceptions. The questions posed focused on areas related to recognizing relevant patient cues and analyzing the nursing assessments and interventions which were conducted as well as patient safety, teamwork, collaboration, and communication. A final question was used to extend NGRN thinking by asking what would occur next if the scenario continued. Finally, participants were asked to identify their biggest learning take-away that would be used in future clinical practice as a result of this experience. An instructor debriefing guide is illustrated in Appendix O.

The scenario was designed to incorporate and highlight several points from the research literature and Educational Module. One example was that some patient data was omitted from the patient chart, including vital signs, such as respiratory rate and blood pressure, at varying times in the vital signs record, which would be helpful to recognize the client’s deterioration. A second example embedded in the patient’s social history was the information that the client’s adult son had died in a car accident one year prior to this admission. When the patient’s condition begins to deteriorate, he requests that the nurse call his son thus demonstrating a
change in mental status. This could only be recognized had the nurse noted the patient’s social history. Additional patient data and chart forms were created to incorporate patient vital signs over the course of this admission, intake and output data, provider orders, medication administration record, history and physical, lab data, chest x-ray, and electrocardiogram.

**Equipment**

A variety of equipment and clinical supplies were used to implement this project. A high-fidelity manikin was required that could exhibit the physiologic parameters of the simulated patient. An instructor tablet was necessary to operate the manikin and respond physiologically to student actions throughout the scenario. A Laerdal tablet was used as a simulated patient monitor which transmitted patient vital data to participants. Clinical equipment and supplies were available to the nurses in order to anticipate any assessments or interventions they may have wanted to pursue during their simulated care. Examples of those provided were a simulated thermometer, blood pressure cuff, pulse oximetry probe, electrocardiogram leads, an electrocardiogram machine, a simulated glucometer, a medication cart, personal care supplies, intravenous pump and fluids, urinal, oxygen flow meter, non-rebreather mask, nasal cannula, patient suctioning supplies, phone, and patient call bell. The simulation manikin was placed supine in a hospital bed with the head of bed at 30 degrees. All equipment, including manikin, were set up in a patient bay of the clinical learning center by the simulation technician and project champion.

**Data Management Plan**

A variety of quantitative and qualitative data was considered for this project including institutional and individual participant information. Many data sources were considered that were internal and external to the project. Internal project data included questionnaires created by the
project champion, focus group results, and assessment tools found in the research literature. External data included available data on FTR and NGRN practice from leading professional organizations such as IHI and AHRQ, and data on clinical simulation from professional organizations such as INACSL. Public data sources, such as simulation equipment vendors, were also reviewed. A detailed data management plan is summarized in Appendix P. This includes information on project aims and objectives, data collection methods, rationale, analysis, and timeline.

The primary project-generated data included demographic and needs assessment data from primary stakeholder groups, satisfaction and feedback from pre-licensure nursing students and NGRNs on design and implementation of the CST as discerned from the Simulation Design Scale, a comparison of pre- and post-intervention SSSCLI satisfaction and confidence scores from NGRNs, a comparison of pre- and post-knowledge test data, post-intervention competency scores on the C-CEI tool for specific behavioral performance criteria, and themes identified from three focus group meetings with NGRNs.

Quantitative data from all electronic questionnaires and instruments was calculated by the project champion using Microsoft Forms and Excel. Microsoft Forms provided a visual analysis of responses using a pie chart or bar graph illustrating response frequencies. Free text responses were shown in list format. The project champion aggregated qualitative free text data into themes using thematic analysis. Data collected from the SSSCLI during project month one was the only hand written project data captured by participants. This was stored in a secure location accessed only by the project champion. The hand written data was calculated by the project champion to determine completion rate and general percentages and means of measurements of satisfaction.
with the CST and confidence of participants caring for deteriorating patients. This was then compared to post-CST data.

Data analysis occurred in project month four. All data was secured, managed, and analyzed solely by the project champion. Needs assessment questionnaire data helped to provide an understanding of FTR among NGRNs at this facility and to determine the design of the Educational Module and case scenario. A comparison of participant scores both before and following the Educational Module helped to determine if knowledge on care of deteriorating patients was gained and was used to discern if NGRNs completed pre-scenario education. A comparison of data from the SSSCLI was used to determine if participants described an increase in self-confidence while caring for deteriorating patients following the CST as well as expressed satisfaction with simulation as a strategy of teaching and learning. Post-intervention competency data obtained from the C-CEI revealed the strengths and weaknesses of NGRN practice when caring for a deteriorating client. This data could be used to design future educational interventions and as baseline data for future clinical scenario competency comparisons. Finally, three focus groups produced qualitative themes surrounding the clinical problem and proposed solutions for failure to recognize and respond to deteriorating patients at this organization. This coupled with data from the Simulation Design Scale was used to provide the facility with a sustainable plan for CST.

**Results/Findings**

The demographics of the participants are displayed in Appendix Q. Four pilot test pre-licensure nursing students are included with 17 NGRNs who completed an initial needs assessment questionnaire. Demographic data was not unexpected and could not be correlated to project outcomes. The project’s focus was medical surgical NGRNs; however, one participant
identified as working in a critical care unit. Fourteen nursing administrators and five RRT members also completed needs assessment questionnaires. Of these stakeholders, most RRT members had served greater than 24 months on the team and held the position of critical care nurse.

**Pre-Intervention Needs Assessment Data**

Stakeholders offered their perceptions of NGRN practice with deteriorating patients through responses to needs assessment questionnaires. A pie chart illustrates that pre-intervention almost 11/17 (65%) of NGRNs felt somewhat confident in their ability to care for a deteriorating client (Appendix R). This contrasted with nursing leadership where 5/14 (36%) responded “not at all confident” and 6/14 (43%) responded only “somewhat confident.” These findings corroborate research findings stating many clinical nurse leaders feel graduates are not practice-ready nor able to make sound clinical decisions and need competency skills to improve their clinical decision-making (Huston et al., 2018; Monagle et al., 2018).

Stakeholders were asked for their opinions on NGRN strengths and weaknesses when caring for deteriorating patients. Their responses are compared in a bar chart (Appendix S). New graduates identified that their top strength was communication with providers. Nursing leadership and the RRT instead reported activation of the RRT as a top strength. Members of the RRT perceived knowledge of facility activation policy as a secondary strength of NGRNs. All stakeholders agreed that the top weaknesses in NGRN practice were related to early recognition of deterioration and priority nursing interventions justifying the need for this QI project on high demand. Almost half of all NGRNs expressed comfort calling the RRT for a question and a majority reported that the charge nurse was their primary resource for these patient situations.
Qualitative data from these questionnaires was obtained using open-ended questions targeting opinions on the largest challenges faced by NGRNs when caring for declining patients. Stakeholders were asked to provide additional comments on multiple choice questionnaire items. Most NGRN responses were quite profound and mirrored findings in the research literature. Overarching themes included feeling overwhelmed, lacking confidence and situational awareness, an inability to recognize deterioration cues, uncertainty with what to do with patient assessment data, and “freezing” in high-stress situations. One NGRN said, “When patients begin to deteriorate rapidly, it can be tough to have a clear mind to think of what exact interventions are needed.” Another said, “Sometimes it can be confusing what I can do…and it feels like a lot of pressure and your mind blanks on interventions that can be done or helpful…sometimes it is hard to differentiate when a patient needs a rapid or to wait to see if my intervention has worked. Do I call and waste their time if the patient becomes fine by the time they arrive? I have a hard time distinguishing the true rapid needs versus this is something I should be able to handle on my own and I don’t want to look or feel incompetent by calling a rapid when I could’ve handled it.” Research describes NGRNs view of patient deterioration scenarios as “high-stakes” (Ratta, 2016). This was validated by one NGRN who described a patient case where she missed the early signs of sepsis. She stated this experience undermined her nursing confidence. Almost all NGRNs reported reliance on the unit charge nurse to assist them in moments of patient crisis and their preference for contacting the charge nurse prior to activation of the RRT.

Nursing leadership felt that critical care NGRNs could benefit from additional education on this topic and that new nurses needed trusted resources to assist them in navigating patient deterioration situations. Members of the RRT were asked for their opinions on what they felt was most important for NGRNs to learn about care of declining patients. Their responses focused on
teaching NGRNs who their resources are, how to recognize the signs of early deterioration, how to intervene and communicate to the RRT, and to not panic.

**Knowledge Test**

Participants were asked to complete a seven-question knowledge test both before and after viewing the Educational Module. Content focused on deteriorating patient assessments, interventions, and facility policy for activation of the RRT. Twenty-three participants took the pre-test while only 17 completed the post-test. This data included four pilot test participants. Data from pilot test students was excluded as it was for testing purposes only. Post-test average scores demonstrated a modest increase in knowledge of care of deteriorating patients (Appendix T).

**The NLN Student Satisfaction and Self-Confidence in Learning Instrument**

This questionnaire was administered using a paper and pencil method to 15 NGRNs who completed a face-to-face project orientation session in month one. The first five questions focus on satisfaction with simulation delivery. The project champion asked participants to describe attitudes on satisfaction with prior simulation experiences so these could be compared to the project’s simulation delivery methods. Only 12/16 NGRNs completed the post-project questionnaire. Average scores demonstrated an increase in satisfaction with simulation as a teaching and learning strategy (Appendix U). The remaining eight questions focused on perceived NGRN confidence regarding skills targeted by the simulation activity. Post-project average scores demonstrated an increase in NGRN perceived confidence following implementation of the CST (Appendix V).
The Creighton Competency Evaluation Instrument

Appendix N details the behavioral criteria deemed essential in order to achieve a full score for each performance category. A score of zero was assigned when any of the assigned critical criteria were not completed during the simulation. Prior to implementation of the CST, a total minimum competence score of 16/21, or 76% was established, a score determined by content experts mentioned previously in this paper. Environmental assessment and documentation criteria were marked as non-applicable since they were not part of the simulated scenario.

Appendix X is a data table illustrating performance for all simulation groups in addition to the total group score for each behavioral category. No group met the baseline competence score of 76%. All groups received a zero-score for assessment. This was the largest area of NGRN deficit. A zero-score occurred as a result of a lack of a full head to toe assessment or an incomplete ABCDE follow-up assessment upon the change in the patient’s condition. Many of the nurses did not recognize the change in neurological status during the scenario as a result of not reading the patient chart noting that the scenario patient’s son had died in a car accident within the last year. This finding correlated to research stating nurses often miss deterioration as a result of not knowing their patient’s medical or social history (Chua et al., 2019; Large & Aldridge, 2018; Massey et al., 2017; Nibbelink & Brewer, 2018). The research also states that nurses highly value pulse oximetry and may use these readings over respiratory rates when determining a patient’s condition (Flenady et al., 2017). Nurses may also miss the subtle changes in a patient’s clinical status when overly focused on patient care monitors rather than focusing on holistic patient assessments (Powel-Cope et al., 2008). This dependence on monitors and machines was observed throughout the scenarios as the NGRNs used pulse oximetry and the
patient monitor as rationale for choosing interventions over holistic head to toe and focused follow-up assessments.

Lost points in the communication category resulted from an incomplete ISBAR report to the RRT and/or from not meeting the criteria for responding to abnormal findings. One group did not identify themselves or their patient’s location, one group did not describe the situation, and none provided a recommendation. Only one group held intravenous fluids as a result of detecting the patient’s fluid overload and administered furosemide. One group did not apply a non-rebreather mask. Groups lost points in the clinical judgment category for two reasons. While all groups eventually activated the RRT, all groups called either the charge nurse or medical provider first, delaying escalation of care. This corroborated NGRN statements from the needs assessment. All groups mentioned in debriefing that they were encouraged to contact the charge nurse prior to activating the RRT. This should be brought to the attention of the education and leadership team and policy for appropriate follow-up and re-education of staff. No groups could identify within the scenario or debrief an evidence-based rationale for activation of the RRT. All groups activated based on a “gut” feeling or after seeing a decrease in vital sign parameters on the patient monitor, or fear. This was surprising as a large portion of the Educational Module was dedicated to the facility’s procedure and criteria for activation.

All groups lost points in the patient safety category. No group identified the patient appropriately. No group assessed for proper emergency equipment, if the intravenous fluids were appropriately programmed per medical orders, or if patient monitor alarm settings were safely programmed.

Many NGRN strengths were demonstrated in the clinical scenario and subsequent debriefing (Appendix W). These were excellent therapeutic communication with the patient,
infection control measures, remaining with the patient experiencing a crisis, assessing subjective data, recognizing some of the signs of deterioration and activating the RRT, and thoughtful self-analysis and reflection. All participant groups were professional and engaged throughout the simulation sessions. All groups were beginning to make connections and demonstrate the initial stages of clinical judgement. Future opportunities for improvement identified by this project were that nursing assessment is often incomplete and may be performed inaccurately. Many of the NGRNs reported feeling as if they completed a full head to toe assessment of the patient. When queried, they realized they did not auscultate all lung fields or know where all four heart auscultation sites were or why they would be assessed. Upon the change in client condition, a full ABCDE assessment was not completed by any of the participants. This assessment was outlined in the Educational Module. All NGRNs focused on the patient monitor during the deterioration rather than the actual patient. Most groups focused solely on decreasing pulse oximetry readings to determine their subsequent nursing interventions. This demonstrated that a majority of the NGRNs were making clinical decisions based on limited assessment data.

Focus Group Interviews

Three focus group interview sessions were held two weeks after the simulated sessions occurred. Five out of 16 NGRNs who participated in the simulation session attended a focus group. The interviews consisted of four open-ended questions targeting NGRN perceptions of the CST. Six themes were identified through these interviews. These included praise for the Educational Module, the importance of the policy for activation of the RRT, that simulation is a safe space for learning and allows participants to tie knowledge to practice, how CST assisted with thorough nursing assessment, and finally how CST helped NGRNs to know what to do when a patient deteriorates.
All focus group participants expressed how helpful they found the Educational Module as a resource of information on FTR and that they learned new information as a result of the project. Four out of five focus group NGRNs stated, in addition to several NGRNs in debriefing sessions, that they were not aware of the facility’s procedure for RRT activation prior to this project and that they felt this was important. One NGRN stated, “The educational intervention was really helpful. I have reviewed it at least two times…There were a lot of things I did not know, especially the parameters for activation.” This was surprising considering that nursing leadership and RRT members felt knowledge of the policy was a top strength of NGRNs. Four out of five participants recommended a review of the policy during orientation and a handout for NGRNs to have for review throughout their residency period.

All NGRN participants stated that they felt that simulation is a safe place to practice and learn. One participant said, “The CST was really good. It is difficult when you are in that moment to gather your thoughts to know what to do. The CST is great to be able to practice and talk about it in a low pressure environment so you can train your brain to know ok when this happens this is what I need to do…” Three out of five participants reported that it was helpful to have a clinical discussion in pre-briefing prior to caring for the simulated patient. This helped them to consider their plan of care to get the most out of the experience.

All five NGRNs stated that their assessment skills had improved or been refined following the project. They expressed feeling they needed a refresher on both assessment skills as well as the signs of patient deterioration. Three out of five NGRNs had never heard of the ABCDE assessment method and found this systematic process helpful. One participant stated, “I would say that now, following the project, that I stop and take a minute to ask myself have I done a thorough assessment of my patient? Have I listened to all heart sounds because I used to
just do an apical, so now I am taking the time to do a more thorough assessment and considering the “why” of doing it, so I think the project really helped my assessment skills.” Another stated, “Assessment is really important because if you do not assess patients thoroughly you may miss something. I have learned to not focus on one aspect only but to see the patient as a whole. This project changed the way I do my assessments.” Two out of five mentioned that they now trend their patient vital signs when they did not do so prior to this project. One participant mentioned actively reviewing the patient chart to identify any changes in vital signs over the past 24 to 48 hours. Four out of five participants also mentioned the importance they placed on learning the priority nursing interventions for a deteriorating patient and the importance of understanding the evidence-based rationale for nursing actions. All NGRNs agreed that they would encourage continued use of CST during residency and training. All participants recommended including more simulations focused on care of psychiatric patients, mock codes, cardiac telemetry scenarios, and practice with SBAR.

Outcomes

Aim #1 of this project was to examine the underlying causes for a lack of NGRN recognition and response to deteriorating patients. This was achieved through needs assessments conducted with project stakeholders. The causes identified through this project were a lack of knowledge of when to activate the RRT, an inability to recognize patient decline, feeling overwhelmed by workload, and knowing how to respond to patient decline with priority interventions. Since only one NGRN cohort was sampled and some stakeholders, such as the NGRN preceptors, did not participate, the outcomes were only partially achieved. It was felt that not all causes were identified with this limited number of participants.
Aim #2 was to implement a Plan-Do-Study-Act cycle of CST. This aim was met through use of two PDSA cycles conducted during this project. The first was the CST pilot test with four pre-licensure nursing students two months from graduation. The second was implemented with NGRN participants during the project implementation. The CST was developed based on INACSL standards for best simulation practices and customized to project participants based on factors identified through needs assessment data. All participants were provided with an Educational Module to prepare them with the required knowledge and skills to successfully participate in the simulated scenario.

Aim #3 was met through evaluation of the effectiveness of the CST in improving NGRN confidence and competence. Post-intervention satisfaction and confidence scores increased following implementation of this project. Knowledge test scores saw a modest increase following viewing of the Educational Module. Seventeen NGRNs completed the pre-project NLN SSSCLI, sixteen NGRNs participated in the simulated scenario, and 12 completed a post-project NLN SSSCLI. An expected project outcome was for an increase in competence scores post CST; however, the findings were that NGRNs did not meet minimum expected competence scores. This may have been due to the project’s new graduates experience level of less than six months of experience, poor use of the Educational Module by the participants prior to scenario performance, or due to only one simulation scenario being conducted.

Aim #4 provided a sustainable plan to continue the CST in the residency program. This was met through a well-developed CST given to the clinical facility for future use. The materials presented to the education department can be used to continue this CST and will serve as a template for future simulation scenario development. The simulation technician and project champion were able to establish the facility’s high-fidelity manikin as fully operational for future
use. The simulation technician trained all interested educators in the manikin’s use and operation while the project champion debriefed all NGRN groups during the scenario implementation. An instructor guide to running the manikin was also created by the project champion and given to the education department.

**Interpretation**

The primary objectives for this project were to increase the confidence and competence of NGRNs when caring for deteriorating patients. Average confidence scores post-CST were increased but, as NGRNs who attended focus group sessions attested, more experience and time practicing these skills will be required to feel fully confident. It is difficult to anticipate all clinical deterioration scenarios one might experience, and as new nurses experience various situations over time, confidence and skill evolves. Creating a supportive environment where mentorship and collaboration is encouraged will be key to developing this confidence.

The original project plan included two simulation scenarios; however, residency program time constraints resulted in a reduction to one scenario mid-project. While one scenario allowed for an assessment of the aggregated strengths and weaknesses of NGRN performance for these three groups, it would be interesting to run the same simulation scenario with this cohort again to identify if performance improved. It would also be interesting to implement a second deterioration case scenario to see if learning can be transferred to an alternative patient situation. Specific strengths and weaknesses in NGRN practice were documented offering future opportunities for targeted education. The simulation experience allowed NGRNs to reflect on these strengths and weaknesses and create strategies for future improvement. This project identified that the largest weakness in NGRN practice was assessment. Certainly, this correlated to research findings stating that new graduates may overly focus on one parameter or vital signs
to the detriment of holistic patient assessments (Chua et al., 2019; Hart et al., 2016b). Brier et al., (2015) state that experienced nurses use both vital signs and nursing assessments to determine a patient’s status. It would be interesting to implement this simulation with experienced nurses to compare their practice with those of more novice nurses. This would help to identify appropriately leveled performance criteria for each of Benner’s Novice to Expert stages to ascertain if nursing staff are developing clinical judgement (Benner, 2001). The NGRNs who participated in this project acknowledged that they experienced pre-licensure education during the Covid-19 pandemic. This may have impacted their learning, clinical experience, and level within Benner’s competency stages.

After observing three simulation groups and noting only modest improvements in knowledge test scores post-module, the project champion speculated that perhaps the NGRNs did not fully view the education prior to engaging in the simulation sessions. This may have partially explained the suboptimal competence scores for all groups. Many participants mentioned the pre-scenario education in the focus group interviews. Perhaps the scenario assisted participants to find the education relevant once living through the simulation experience leading to post-CST review of the module.

The project facility now has a sustainable plan for CST and an operational manikin. One of the unintended consequences of this project was to garner interest in use of CST and to educate and train staff on equipment and software. Prior to this project, the manikin was not well used. The educators required familiarity with simulation andragogy or best practices. This project offered the benefit of providing the facility with a more active teaching strategy to use in the future for orientation and quality improvement.
Limitations

The barriers and limitations for this project were primarily related to time constraints, staff engagement, simulation expertise, and functionality of simulation equipment. The residency schedule was limited requiring pre-scenario education to be electronically delivered. This may have led to participants not viewing the education prior to the scenario. If education had been presented in person, perhaps competence performance would have been of better. Simulation sessions are a place to practice application of previously learned concepts and not new information. Two scenarios would have been preferable to one to allow for more practice with the concepts and to identify improvements from scenario one to two. Also, simulation sessions had to be limited to one and one-half hours each. This was a complex scenario and the ideal would have been to allow more time to explore NGRN thinking and decision-making through pre- and debrief sessions.

A second limitation was staff engagement. The project champion was not a member of this clinical institution and, therefore, did not have the benefit of pre-established relationships and trust. It was speculated that COVID burnout may have played a role in a lack of project engagement. The hospital educator offered free coffee coupons as an incentive; however, only 12 NGRNs completed the questionnaire and only 5 attended focus group sessions. A third session was added, but no one attended.

The remaining barriers related to simulation expertise and functionality of the simulation equipment at the project facility. The project champion had to create a Plan B when it became apparent that the equipment was not functional and that someone would be needed to operate the manikin while each simulation group was observed. A best practice for simulation is for the debrief facilitator to focus solely on participant behaviors while a second individual operates the
manikin. No one at the facility expressed comfort with operating the manikin so the project champion secured her own simulation technician from her place of employment. The simulation technician accompanied the project champion to update and set-up the manikin and then again on the day of the scenario to operate the manikin and offer training to facility staff while the champion provided debriefing sessions.

Sustainability

For this CST to be sustainable, it will be critical to designate one educator as a simulation champion. This individual could attain further training and development and in turn train others on simulation andragogy and operations for best use. This formal training should include best practices in simulation to assure that simulations are implemented appropriately as negative outcomes can occur if best practices are not followed. The Maryland Clinical Simulation Resource Consortium (MCSRC) is a statewide initiative funded by the Nurse Support Program and approved by the Health Services Cost Review Commission and Maryland Higher Education Commission (MCSRC, n.d.). This program promotes the use of simulation across the state and offers a variety of free educational resources which this facility could use to train its educators. Many partnerships are developing between academic and clinical institutions. The MCSRC is housed in an academic institution close to the project facility. A partnership could be developed which would provide the best opportunities to create a sustainable CST program.

Certainly, there is an associated cost involved when using high-fidelity simulation and this should be considered. The facility has already purchased a manikin but it will require ongoing updates and maintenance to remain functional. The facility could use pre-constructed, peer reviewed simulation scenarios to save staff time and salary. Often these can be found as an
open educational resource online. The MCSRC offers a free simulation library which can be accessed online.

It is recommended that the facility gather more internal data on FTR to better understand the drivers of this problem and potential future solutions. Data could be obtained by following suggestions from leading professional organizations such as the AHRQ and the Patient Safety Network which offer many recommendations and tools for data collection for this clinical problem. The data obtained could drive future QI initiatives. The RRT could be responsible for data collection in collaboration with the hospital educator. If the CST is continued, it would also be interesting to identify if enhancing confidence and competence with these high stakes patients decreases NGRN turn-over rates.

**Recommendations**

Several recommendations can be proposed from project data. Research cited previously in this paper suggests experienced nurses activate the RRT more often than novices with one cause cited as a lack of confidence among new nurses in calling the RRT (Astroth et al., 2017). The authors additionally suggest that hospital education which includes training on RRTs and deteriorating patient management improved organizational culture and team dynamics allowing for more frequent use of RRT (Astroth et al., 2017). A recommendation based on these findings and project data would be for future interprofessional deteriorating patient simulations to include medical providers and the RRT. This would facilitate improved communication between providers and nursing staff. An added benefit would be a more trusting relationship between these groups which may prevent delays in escalation of patient care from new nurses who may be fearful of contacting the RRT during a patient crisis. Additionally, it is recommended that RRT members be invited to residency training to teach NGRNs about activation criteria and
policy, RRT use, and how to recognize and respond to patient deterioration. This would also assist with relationship and team building, and RRT members could provide expert information on how to prevent negative outcomes. This would create an environment of support and mentorship for new graduates.

Clinical simulation should be incorporated into residency course activities with scenarios targeting nurse practice needs. Data should drive the scenarios chosen. Poor competence findings from this project indicate the need for practice on complete and accurate nursing assessment. A subsequent PDSA cycle of CST should occur with experienced nurses to compare their performance to those of new graduates. Findings could be used to identify future educational opportunities and determine acceptable standards of performance. It will be important to determine the appropriate timing of administration of this CST within the residency timeline. Perhaps it could be tested with new graduates after residency month six and again with all nurses during annual competency testing.

**Funding**

The financial expenditures of this project consisted of the costs of snacks for the nurses, the folders and copying of handouts for project orientation, and salary time for the last simulation session group which had to stay beyond their pre-scheduled residency timeframe. Some cost should be considered for the salary of the institutional technology employee who worked with the simulation technician to update the high-fidelity manikin and laptop battery. These costs were minimal, especially when considered in comparison to the alternative costs for patients who experience cardiac arrest, ICU admission, or death as a result of FTR.

The plan for this CST was designed to be conducted within the pre-existing residency schedule. Consideration would need to be made as to current residency program content that
would be replaced, or if residency time would be added which would contribute to salary costs. Another consideration would be whether the Educational Module would be presented in person or continued in an electronic format. Continued data collection could demonstrate a return on investment through improved performance in the CST or through unit FTR data following targeted education.
Conclusion

This QI project offered one evidence-based solution for FTR. While research describes a variety of solutions, a CST was the most feasible for this facility during this period. A combination of future approaches will be required for such a multifactorial and complex problem. This project was useful in that it identified many of the causes of FTR among NGRNs at this facility. A sustainable plan to continue the CST was delivered and can be offered to nurses of all levels of experience. This will remain sustainable only if educators at this facility embrace simulation and designate a champion. If this occurs, a simulation program could be developed and enlarged to serve residency training needs as well as ongoing education and annual competency training needs. Many clinical facilities are building their own simulation centers or partnering with local academic institutions to provide this evidence-based educational strategy to staff. Montgomery College is a local academic institution with a large simulation program as one possibility. The simulation program could expand beyond the nursing department to serve the needs of other healthcare providers such as physical therapy, medicine, and pharmacy among others.

As technology evolves the addition of patient monitoring and early warning systems may occur at this facility. These technologies could mitigate some of the characteristic issues seen in medical surgical environments which lead to a higher incidence of FTR and could lead to improved and more frequent monitoring of patients thereby improving outcomes. Additional data on FTR at this facility will need to be collected to determine the next steps of action along the quality improvement continuum including CST. Finally, the NGRN participants for this project were able to gain knowledge of FTR, facility procedure and criteria for activation and use of the RRT, how to recognize declining patients, and how to respond with priority interventions.
Many research studies support the use of simulation to increase the confidence and competence of NGRNs when caring for deteriorating patients. More studies should be conducted to determine the correlation between CST and NGRN confidence and competence when caring for deteriorating patients. High quality research data will demonstrate to administrative leaders CST’s return on investment. This is critically important when more costly high-fidelity simulations are used by education departments.

Clinical simulation has advanced exponentially in academic settings over the past decade. Clinical settings, especially smaller community hospitals similar to the project facility, have seen more limited use of CST. Overwhelming numbers of inexperienced nurses are caring for patients in the current healthcare environment. Experiential learning will be critically important to retain these new nurses and support their achievement of safe practice. Partnerships should be established between academic and clinical educators to mentor and develop CST within the hospital setting. Both academic and clinical educators have a responsibility to collaborate to bridge the gap between pre-licensure schooling and post-licensure practice.
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Appendix A

Project Participation Consent Form

Consent Form to participate in this project: “Improving Self-Confidence and Clinical Competence in Recognition and Response to Deteriorating Patients by New Graduate Registered Nurses (NGRNs) Using Clinical Simulation Training (CST)”

Project Coordinator: Tammy Schwaab

You are invited to participate in a doctoral project conducted by a Duquesne University Doctor of Nursing Practice student, Tammy Schwaab. Tammy hopes to learn more about the confidence and competence of medical surgical new graduate nurses at Suburban Hospital when caring for deteriorating patients. This project is being conducted to fulfill the requirements of Duquesne University’s Doctor of Nursing Practice degree. This project and the project coordinator are under the supervision of Dr. Manjulata Evatt, faculty mentor, Eunice D’Augustine, project preceptor and Teresa McCamon, project Educator. You were selected to participate in this project because you are a current medical surgical new graduate registered nurse enrolled in the residency program at Suburban Hospital.

If you decide to participate, you will be asked to complete the following items:

- Project Orientation
- Demographic and Needs Assessment Questionnaire
- Educational Pre-Test
- Educational Post-Test
- The Student Satisfaction and Self-Confidence in Learning Instrument at both the beginning and end of the project
- Review an Educational Module prepared for you
- Participate in 1-2 simulation scenario sessions
- End of Project Focus Group

This time will be incorporated into your current residency time and schedule to the greatest extent possible. Your participation is voluntary, and it is our hope that you will benefit greatly from this educational experience.

If you have any questions or concerns, please contact the Project Coordinator, Tammy Schwaab, at 443-929-2344.

Your signature indicates you agree to participate.

Signature______________________________________________Date__________________________
Appendix B

PDSA Cycle

Illustration of PDSA Cycle of CST

- Form Project Team
- Needs Assessment Questionnaire
- Develop Clinical simulation training

Plan

Do

Act

Study

- Pilot Testing
- Implement education and clinical simulation scenario

- 3 Focus Groups
- Analyze project data

- Revise CST based on findings

Note. Illustration created by the project champion of the PDSA cycle for this QI project.
## Appendix C

### Project Timeline

#### Project Timeline Table

<table>
<thead>
<tr>
<th>Project Planning Phase</th>
<th>Project Month One</th>
<th>Project Month Two</th>
<th>Project Month Three</th>
<th>Project Month Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify Stakeholders</td>
<td>• Provide Project Orientation to Participants &amp; Review Educational Module</td>
<td>• Administer Educational Module with Pre- and Post-Knowledge Test to Participants</td>
<td>• Administer Pre-Pilot Questionnaires (SSSCLI &amp; Demographic and Needs Assessment) to Pre-Licensure Nursing Students</td>
<td>• Hold NGRN Focus Group Meetings to Collect Qualitative Data</td>
</tr>
<tr>
<td>• Establish Project Team</td>
<td>• Collect Demographic and Needs Assessment Questionnaires</td>
<td>• Maintain Engagement with Weekly Electronic Emails &amp; Answer Participant Questions</td>
<td>• Pilot Test CST with Pre-Licensure Nursing ADN Students &amp; Collect Post-Pilot SSSCLI, SDS, &amp; C-CEI Data</td>
<td>• Aggregate and Trend Project Data</td>
</tr>
<tr>
<td>• Identify CST participants</td>
<td>• Collect Pre-Intervention SSSCLI from NGRNs</td>
<td>• Design Simulation Session Pre-Brief, Case Scenario &amp; Debrief Sessions</td>
<td>• Participant NGRNs attend Simulation Scenario Day</td>
<td>• Disseminate Project Results to Stakeholders</td>
</tr>
<tr>
<td>• Create Stakeholder Demographic &amp; Needs Assessment Questionnaires</td>
<td>• Distribute Demographic and Needs Assessment Questionnaires to Stakeholders</td>
<td>• Collect Demographic and Needs Assessment Questionnaires</td>
<td>• Design Simulation Session Pre-Brief, Case Scenario &amp; Debrief Sessions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review and Appraise CST with Content Experts</td>
<td>Set Up Simulation Space and Test Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------</td>
<td>--------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Score NGRN competence with C-CEI</td>
<td>Collect Post-Intervention SSSCLI &amp; SDS Data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix D

The Student Satisfaction and Self-Confidence in Learning Instrument

Student Satisfaction and Self-Confidence in Learning

Instructions: This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your simulation activity. Each item represents a statement about your attitude toward your satisfaction with learning and self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs. Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

Mark:
1 = STRONGLY DISAGREE with the statement
2 = DISAGREE with the statement
3 = UNDECIDED - you neither agree or disagree with the statement
4 = AGREE with the statement
5 = STRONGLY AGREE with the statement

<table>
<thead>
<tr>
<th>Satisfaction with Current Learning</th>
<th>SD</th>
<th>D</th>
<th>UN</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The teaching methods used in this simulation were helpful and effective.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>3. I enjoyed how my instructor taught the simulation.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>4. The teaching materials used in this simulation were motivating and helped me to learn.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>5. The way my instructor(s) taught the simulation was suitable to the way I learn.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-confidence in Learning</th>
<th>SD</th>
<th>D</th>
<th>UN</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. I am confident that I am mastering the content of the simulation activity that my instructors presented to me.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>7. I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>8. I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>9. My instructors used helpful resources to teach the simulation.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>10. It is my responsibility as the student to learn what I need to know from this simulation activity.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>11. I know how to get help when I do not understand the concepts covered in the simulation.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>12. I know how to use simulation activities to learn critical aspects of these skills.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
<tr>
<td>13. It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time.</td>
<td>O1</td>
<td>O2</td>
<td>O3</td>
<td>O4</td>
<td>O5</td>
</tr>
</tbody>
</table>
Appendix E

The Creighton Competency Evaluation Instrument

Creighton Competency Evaluation Instrument (CCEI)

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>0 = Does not demonstrate competency</th>
<th>1 = Demonstrates competency</th>
<th>NA = Not applicable</th>
<th>Date: <strong><strong><strong>/</strong></strong><em>/</em></strong>___</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All applicable check for all applicable criteria</td>
<td>You may leave blank if not applicable, or not relevant</td>
<td>MM/DD/YYYY</td>
<td></td>
</tr>
</tbody>
</table>

**ASSESSMENT**
1. Obtains Pertinent Data  0  1  NA
2. Performs Follow-Up Assessments as Needed  0  1  NA
3. Assesses the Environment in an Orderly Manner  0  1  NA

**COMMUNICATION**
4. Communicates Effectively with Intra/Interprofessional Team (TeamSTEPPS, SBAR, WHTT, POCUS, Triage)  0  1  NA
5. Communicates Effectively with Patient and Significant Other (verbal, nonverbal, teaching)  0  1  NA
6. Documents Clearly, Concisely, & Accurately  0  1  NA
7. Responds to Abnormal Findings Appropriately  0  1  NA
8. Supports Professionalism  0  1  NA

**CLINICAL JUDGMENT**
9. Interprets Vital Signs (T, P, R, BP, Pain)  0  1  NA
10. Interprets Lab Results  0  1  NA
11. Interprets Subjective/Objective Data (recognizes relevant from irrelevant data)  0  1  NA
12. Prioritizes Appropriately  0  1  NA
13. Performs Evidence Based Interventions  0  1  NA
14. Provides Evidence Based Rationale for Interventions  0  1  NA
15. Evaluates Evidence Based Interventions and Outcomes  0  1  NA
16. Reflects on Clinical Experience  0  1  NA
17. Respects Appropriately  0  1  NA

**PATIENT SAFETY**
18. Uses Patient Identifiers  0  1  NA
19. Utilizes Standardized Practices and Precautions Including Hand Washing  0  1  NA
20. Administers Medications Safely  0  1  NA
21. Manages Technology and Equipment  0  1  NA
22. Performs Procedures Correctly  0  1  NA
23. Reflects on Potential Hazards and Errors  0  1  NA

**COMMENTS**

Total: __________
Total Applicable Items: __________
Earned Score: __________

Revised for DEU use 8/20/2013
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Appendix F
The NGRN Demographic and Needs Assessment Questionnaire

Demographic and Needs Assessment Questionnaire: New Graduate Registered Nurse
This is anonymous so that you can speak freely.
I am trying to identify the specific issues you may be experiencing with recognizing and responding to deteriorating patients so that I can customize education to your unique needs.
I have a few demographic questions at the beginning of this questionnaire.
This should take you no longer than 5-10 minutes to complete.
Thank you so very much for your time! This data will help me immensely with this project.

1. Please select your age range:
   - 18-25
   - 26-35
   - 36-45
   - 46 and older

2. Please select your educational background:
   - Associate Degree Nursing Program
   - Baccalaureate Degree Nursing Program
   - Second Degree Baccalaureate Nursing Program
   - Master of Science Nursing Program
   - Other

3. If you were a second-degree student, what was your first degree in?

4. Please describe your healthcare work experience prior to your current position at Suburban.
   - No experience
   - less than 1 year
   - 1 year
   - greater than 1 year

5. Please describe the healthcare position (as described above) you held prior to becoming a new graduate registered nurse at Suburban Hospital.
   - Medication Technician
   - Nursing Assistant
   - Patient Care Technician
   - Transporter
   - Other
6. Please select how many clinical simulation sessions you have participated in?
   - 0
   - 1-4
   - 5-10
   - greater than 10

7. Have you ever participated in a clinical simulation session which focused on a deteriorating patient?
   - Yes
   - No
   - Uncertain

8. At this point of your new graduate residency orientation period, please rate your overall confidence as it relates to caring for deteriorating patients.
   - Not at all confident
   - Unsure
   - Somewhat Confident
   - Fully Confident

9. When caring for deteriorating patients, where do you feel the most confident as a nurse? Select all that apply.
   - Recognizing patient deterioration cues in the early stage
   - Communication with medical providers
   - Interventions I can do as an RN while I await assistance
   - Knowing when to activate the Rapid Response Team
   - My role within the interprofessional team
   - All of the above
   - None of the above
   - Other

10. When caring for deteriorating patients, where do you feel the most challenged? Select all that apply.
    - Recognizing patient deterioration cues in the early stage
    - Communication with medical providers
    - Interventions I can do as an RN while I await assistance
    - Knowing when to activate the Rapid Response Team
    - My role within the interprofessional team
    - All of the above
    - None of the above
    - Other
11. Please expand on your answer above in more depth.

12. What do you feel is the biggest challenge you face as an RN when caring for deteriorating patients at Suburban Hospital?

13. Is there someone on your floor you feel you can use as a resource?
   - Charge RN
   - Preceptor
   - Mentor
   - Other

14. Do you feel comfortable contacting the Rapid Response Team to ask a question?
   - Yes
   - No
   - Unsure

15. Additional Comments/If you answered "Other" for any question, please provide additional details.


The RRT Demographic and Needs Assessment Questionnaire

Needs Assessment Questionnaire: Rapid Response Team
This is an anonymous questionnaire which should take approximately 10 minutes of your time. Your feedback will be used to design an educational program for new graduate nurses at Suburban Hospital as part of a quality improvement project by a doctoral nursing student. Your opinion is extremely valuable to the success of this project! Thank you for your time.

1. Please indicate how long you have served on a Rapid Response Team either at Suburban Hospital or another healthcare facility:
   - [ ] less than 6 months
   - [ ] 6-12 months
   - [ ] 12-24 months
   - [ ] greater than 24 months

2. Please indicate your position on the Rapid Response Team:
   - [ ] Critical Care Registered Nurse
   - [ ] Respiratory Therapist
   - [ ] Medical Provider (PA; NP; MD; DO)
   - [ ] Pharmacist
   - [ ] Other

3. What do you feel are the current strengths of new graduate registered nurse care of deteriorating clients? Select those which apply.
   - [ ] Early recognition of deterioration signs and symptoms
   - [ ] Early activation of the Rapid Response Team
   - [ ] Communication with the Rapid Response Team
   - [ ] RN interventions with a deteriorating patient while awaiting care by the Rapid Response Team
   - [ ] Knowledge of Suburban's procedure on activation of the Rapid Response Team
   - [ ] Confidence when caring for these types of patients
   - [ ] All of the above
   - [ ] None of the above

4. Where do you feel there are deficiencies or the need for additional education of new graduate registered nurse care of deteriorating patients? Select those which apply.
   - [ ] Early recognition of deterioration signs and symptoms
Early activation of the Rapid Response Team
Communication with the Rapid Response Team
RN interventions with a deteriorating patient while awaiting care by the Rapid Response Team
Knowledge of Suburban’s procedure on activation of the Rapid Response Team
Confidence when caring for these types of patients
All of the above
None of the above

5. Which patient deterioration simulation scenarios do you feel would be most helpful to new graduate registered nurses? Select those which apply.
   - Impending respiratory failure
   - Sepsis
   - Hemodynamic instability
   - Mental status changes
   - Other

6. What do you feel is the most important thing that new graduate registered nurses must learn about care of deteriorating patients?

7. What are the most frequent reasons for activation of the Rapid Response Team?

8. What are the most inappropriate reasons for activation of the Rapid Response Team?

9. What do you feel is the one thing that would help to increase use of the Rapid Response Team?

10. Additional Comments/If you answered "Other" for any question, please provide additional details.
Appendix H

The Nursing Education & Administration Demographic and Needs Assessment Questionnaire

Needs Assessment Questionnaire: Nursing Educator/Administrator/Preceptor

This is an anonymous questionnaire which should take approximately 10 minutes of your time. Please be honest in your response.

Your feedback will be used to design an educational program for new graduate registered nurses (NGRN) at Suburban Hospital as part of a quality improvement project by a doctoral nursing student.

Your opinion is extremely valuable to the success of this project!

Thank you for your time.

1. Please indicate your position at Suburban Hospital.
   - Nurse Manager or Director
   - Nurse Educator
   - NGRN Preceptor
   - Other

2. Do you feel new graduate registered nurses are competent to care for deteriorating patients upon hire?
   - Not at all Confident
   - Unsure
   - Somewhat Confident
   - Fully Confident

3. What do you feel are the current strengths of new graduate registered nurse care of deteriorating clients? Select those which apply.
   - Early recognition of deterioration signs and symptoms
   - Early activation of the Rapid Response Team
   - Communication with the Rapid Response Team
   - RN interventions with a deteriorating patient while awaiting care by the Rapid Response Team
   - Knowledge of Suburban's procedure on activation of the Rapid Response Team
   - Confidence when caring for these types of patients
   - Any other

4. Where do you feel there are deficiencies or the need for additional education of new graduate registered nurse care of deteriorating patients? Select those which apply.
   - Early recognition of deterioration signs and symptoms
   - Early activation of the Rapid Response Team
Communication with the Rapid Response Team

RN interventions with a deteriorating patient while awaiting care by the Rapid Response Team

Knowledge of Suburban's procedure on activation of the Rapid Response Team

Confidence when caring for these types of patients

Any other

5. Additional Comments/If you answered "Other or Any Other" to any of the above questions, please provide additional details.
Appendix I

The Pre-Licensure Nursing Student Demographic and Needs Assessment Pilot Questionnaire

Pilot Test Pre-Questionnaire
First, thank you so much for participating in this pilot! This assessment will help me gather data to compare to the data retrieved from the new graduate nurses at my project facility. This should take approximately 5 minutes to complete. Your information is much appreciated!

1. Please select your age range:
   a. 18-25
   b. 26-35
   c. 36-45
   d. 46 and older

2. Please indicate if you are currently an LPN:
   a. Yes
   b. No

3. Please describe your healthcare work experience prior to participation in this pilot:
   a. No experience
   b. Less than 1 year
   c. 1 year
   d. Greater than 1 year

4. Please describe the healthcare position (as described above) you held prior to this pilot test:
   a. Medication technician
   b. Nursing Assistant
   c. Patient Care Technician
   d. Transporter
   e. Other

5. Please select how many clinical simulation sessions you have participated in:
   a. 0
b. 1-4

c. 5-10

d. Greater than 10

6. Have you ever participated in a clinical simulation which focused on a deteriorating patient?
   a. Yes
   b. No
   c. Uncertain

7. At this time of your pre-licensure education, please rate your overall confidence as it relates to caring for deteriorating patients.

Confidence Level: Not at all confident Unsure Somewhat confident Fully confident

8. When caring for deteriorating patients, where do you feel the most confident? Select all that apply.
   a. Recognizing patient deterioration cues in the early stage
   b. Communication with medical providers
   c. Interventions I can do as an RN while I await assistance
   d. Knowing when to activate the rapid response team
   e. My role within the interprofessional team
   f. All of the above
   g. None of the above
   h. Other

9. Please expand on your answer above in more depth.

10. When caring for deteriorating patients, where do you feel the most challenged? Select all that apply.
    a. Recognizing patient deterioration cues in the early stage
    b. Communication with medical providers
    c. Interventions I can do as an RN while I await assistance
    d. Knowing when to activate the rapid response team
    e. My role within the interprofessional team
f. All of the above  
g. None of the above  
h. Other  
11. Please expand on your answer above in more depth.  
12. Do you feel comfortable activating the rapid response team?  
   a. Yes  
   b. No  
   c. Uncertain  
13. Please expand on your answer above in more depth.  
14. What is your biggest fear as you enter clinical practice this spring?  
15. As you prepare to graduate this spring, do you feel you are ready for clinical nursing practice?  
   a. Yes  
   b. No  
   c. Uncertain  
16. Additional comments/If you answered “other” for any question, please provide additional details.
Appendix J

The Simulation Design Scale

Simulation Design Scale (Student Version)
In order to measure if the best simulation design elements were implemented in your simulation, please complete the survey below as you perceive it. There are no right or wrong answers, only your perceived amount of agreement or disagreement. Please use the following code to answer the question.

Use the following rating system when assessing the simulation design elements:
1. Strongly Disagree with the statement
2. Disagree with the statement
3. Undecided - you neither agree nor disagree with the statement
4. Agree with the statement
5. Strongly Agree with the statement
NA - Not Applicable; the statement does not pertain to the simulation activity performed.

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>Objectives and Information</td>
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</tr>
<tr>
<td>1. There was enough information provided at the beginning of the simulation to provide direction and encouragement.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>2. I clearly understood the purpose and objectives of the simulation.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>3. The simulation provided enough information in a clear manner for me to problem solve the situation.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>4. There was enough information provided to use during the simulation.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>5. The cases were appropriate and geared to promote my understanding.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
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<tr>
<td>Support</td>
<td></td>
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<td></td>
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<tr>
<td>6. Support was offered in a timely manner.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
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<tr>
<td>7. My need for help was recognized.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>8. I felt supported by the teacher's assistance during the simulation.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>9. I was supported in the learning process.</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>0 NA</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
</tr>
</tbody>
</table>
# Simulation Design Scale (Student Version)

Use the following rating system when assessing the simulation design elements:

1. Strongly Disagree with the statement
2. Disagree with the statement
3. Undecided - you neither agree or disagree with the statement
4. Agree with the statement
5. Strongly Agree with the statement

NA - Not Applicable; the statement does not pertain to the simulation activity performed.

Rate each item based upon how important that item is to you.

1. Not Important
2. Somewhat Important
3. Neutral
4. Important
5. Very Important

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
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<th>4</th>
<th>5</th>
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<td><strong>Problem Solving</strong></td>
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<tr>
<td>10. Independent problem-solving was facilitated.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
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<td>O</td>
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<tr>
<td>11. I was encouraged to explore all possibilities of the simulation.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>12. The simulation was designed for my specific level of knowledge and skill.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>13. The simulation allowed me the opportunity to prioritize nursing assessments and care.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>14. The simulation provided me an opportunity to develop a care plan for each patient.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<td>O</td>
</tr>
<tr>
<td><strong>Feedback/Guided Reflection</strong></td>
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<tr>
<td>15. Feedback provided was constructive.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>16. Feedback was provided in a timely manner.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>17. The simulation allowed me to analyze my own behavior and actions.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>18. There was an opportunity after the simulation to obtain guidance/feedback from the teacher in order to build knowledge to another level.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td><strong>Fidelity (Realism)</strong></td>
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<tr>
<td>19. The scenario resembled a real-life situation.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>20. Real life factors, situations, and variables were built into the simulation scenario.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>NA</td>
<td>O</td>
<td>O</td>
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</tbody>
</table>

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Pages 2 of 2

Revised December 22, 2004
Appendix K

Educational Module Knowledge Test

Deteriorating Patient Knowledge Test

1. Which of the following are components of an initial nursing assessment for a deteriorating patient who may or may not be able to communicate? Select all that apply.
   a. Cursory neuro assessment
   b. Heart Rate
   c. Peripheral pulses
   d. Respiratory rate and effort
   e. Abdominal auscultation

2. What is a normal capillary refill time?
   a. 5-6 seconds
   b. 4-5 seconds
   c. 3-4 seconds
   d. 2-3 seconds

3. Which of the following urine outputs could demonstrate deterioration in a medical surgical patient?
   a. Less than 70 ml/hr
   b. Less than 50 ml/hr
   c. Less than 30 ml/hr
   d. Less than 10 ml/hr

4. How do you activate the rapid response team at Suburban?
   a. Charge RN should call
   b. Dial 14 to Stat page the Team
   c. Press the code button
   d. Dial extension 2053

5. Which oxygen device is the best initial choice for a deteriorating patient with chest pain?
   a. Nasal cannula at 4 lpm
b. Await Provider orders

c. Venturi Mask to deliver 50%

d. Nonrebreather mask at 15 lpm

6. Per Suburban’s rapid response team procedure, what should the RN do for a patient exhibiting ST elevation on the 12 lead EKG strip?

a. Initiate Code Heart

b. Begin basic life support

c. Administer nitroglycerin

d. Call a Code Blue

7. Which of the following meets the criteria to call a rapid response at Suburban per procedure? Select all that apply.

a. Systolic blood pressure less than 90 mmHg

b. Respiratory rate less than 10

c. SpO2 less than 88%

d. Heart rate greater than 100

e. New onset of arrhythmias

f. Urine output less than 75 mls for 4 hours
Appendix L

The National League for Nursing Simulation Design Template

Simulation Design Template
Deterioration Case

<table>
<thead>
<tr>
<th>Date:</th>
<th>February 2022</th>
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<tbody>
<tr>
<td>Discipline:</td>
<td>Nursing</td>
</tr>
<tr>
<td>Expected Simulation Run Time:</td>
<td>25 minutes</td>
</tr>
<tr>
<td>Scenario Location:</td>
<td>Suburban Clinical Learning Center Patient Bay</td>
</tr>
<tr>
<td>File Name:</td>
<td>Deteriorating Case (SubAcute Cardiac Tamponade)</td>
</tr>
<tr>
<td>Student Level:</td>
<td>NGRN</td>
</tr>
<tr>
<td>Guided Reflection Time:</td>
<td>Pre-brief 15 minutes De-brief 50 minutes</td>
</tr>
<tr>
<td>Location for Reflection:</td>
<td>Clinical Learning Center Classroom</td>
</tr>
</tbody>
</table>

Brief Description of Client

Name: John Brown
Gender: Male  Age: 71  Race: Caucasian  Weight: 210lbs  Height: 5’10”
Religion: Catholic
Major Support: Wife Amy Brown  Support Phone: 443-929-2344
Allergies: PCN/Shellfish  Immunizations: Up to date
Attending Provider/Team: Dr. Schwaab
Past Medical History: Heart Failure; Smoker x 30 years (2 ppd), quit 3 years ago. Hypertension; Type2 Diabetes Mellitus
History of Present Illness: C/O dyspnea on exertion for past few weeks, initially trouble walking to the mailbox and now cannot walk up stairs, with some swelling in lower extremities. He also complained of chest pain during inspiration on admission. Wife brought him to the ED. On presentation to the ED he was 89% RA in ER so placed on Nasal Cannula to maintain SPO2>94%, given diuresis orders and admitted to the Tele floor. CXR showed bilateral interstitial fluid suggestive of pulmonary edema- mild to moderate pleural effusion with some cardiomegaly. ER vital signs 100.8F; 33 RR; 100 HR; 140/80; 89% RA; mod resp distress, bilateral lower extremity swelling
Social History: Lives with wife Amy. Has 1 adult child living nearby (Sophia age 39) (John age 40 was son who died in a car crash 1 year ago). Retired history school teacher.
Primary Medical Diagnosis: Heart failure exacerbation with pleural effusion
Surgeries/Procedures & Dates: Hospitalized twice in 2021 for HF exacerbation to the medical floor-did not require critical care.

Theoretical Frameworks:
- Jeffries Simulation Theory
- Benner’s Novice to Expert Theory
- Constructivism
- Kolb’s Experiential Learning Theory
- Debriefing for Meaningful Learning
Tanner’s Clinical Judgement Model

For Faculty: References, Evidence-Based Practice Guidelines, Protocols, or Algorithms Used for This Scenario:

1. Acute Cardiac Tamponade: An Adult Sim Case for Residents (Diabetes, CA, Asthma PMH)
   (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6464418/)
2. Treating Cardiac Tamponade-Nursing Management
   https://journals.lww.com/nursingmanagement/fulltext/2003/02000/under_pressure__treating_cardiac_tamponad
e_20.aspx
3. Pericardial Effusion with tamponade-bedside US (Case of COPD pat)
4. Acute Cardiac Tamponade (Case is 65 yo male following pacemaker insertion following MI)
   https://www.myamericanurse.com/acute-cardiac-tamponade/
5. Detailed Pathophysiology
   https://www.sciencedirect.com/topics/medicine-and-dentistry/cardiac-tamponade
6. Subacute tamponade 30-year-old post-partum case
   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1861143/
7. Radiology Assistant Heart Failure
   https://radiologyassistant.nl/chest/chest-x-ray/heart-failure
8. Heart Failure Classes
   https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure/classes-of-heart-failure
9. For sliding scale Insulin Order
10. JACC Reports
    https://www.jacc.org/doi/10.1016/j.jaccas.2021.08.010
11. Subacute Case with heart failure (associated with minoxidil)
diagnosis-a-case-report.html
12. Heart Failure: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5336936/
13. Oxygen Therapy Guidelines 2015 /O2 article


Fidelity (choose all that apply to this simulation)

Setting/Environment:
☐ Emergency Room
☒ Medical-Surgical Unit (Tele)
☐ Pediatric Unit
☐ Maternity Unit
☐ ICU
☐ OR / PACU
☐ Rehabilitation Unit
☐ Behavioral Health Unit
☐ Home
☐ Outpatient Clinic
☐ Other:

Simulated Patient/Manikin/s Needed:
High Fidelity Manikin Sim Essential
1 faculty/SimTech to run manikin and be voice of patient and 1 faculty to be pre-and debriefer

Recommended Mode for Simulation:
(i.e. manual, programmed, etc.)
Manual

Other Props & Moulage:
Cell phone, magazines, Alaris Pump, Chart, medications

Equipment Attached to Manikin/Simulated Patient:
☒ ID band
☒ IV Saline lock
☐ Secondary IV line running at ___mL/hr
(See PCA order sheet)

Medications and Fluids:
☒ IV Fluids: NSS
☒ Oral Meds: metoprolol/magnesium/potassium
☒ IVPB:
☒ IV Push: Furosemide 40 mg
☒ IM or SC: Enoxaparin/Insulin Pen

Diagnostics Available on Chart:
☒ Labs
☒ X-rays (Images) CXR
☒ 12-Lead EKG
☐ Other:

Documentation Forms on Chart:
☒ Provider Orders
☐ H&P
☐ Standing (Protocol) Orders
☐ Progress Notes (PCPs, PT, OT, etc.)
☒ Nursing Notes
☒ Medication Administration Record
☐ Medication Reconciliation Form
☒ Vital Signs Record
☐ Intake and Output
☐ Triage Forms
☐ Code Record
☐ Anesthesia / PACU Record
☒ Other: Chest Xray showing bilateral pleural effusion and cardiomegaly/ EKG shows sinus tachycardia/ Lab sheet / Tele orders and MAR
IV pump- Alaris Smart Pump
Foley catheter
PCA pump running
IVPB with _______ running at mL/hr
02 – Need Adult Nasal Cannula, NRBM, other devices and BVM- let them choose, yankauer, etc.
Monitor attached- 02 – Need Adult Nasal Cannula, NRBM, Venturi Mask and BVM- let them choose, yankauer, etc.
Other: IV in right forearm. Need fake IV or put it on the side with BP to see what they do

**Equipment Available in Room:**
- Bedpan/Urinal
- 02 delivery device (type):
  - NC/NRBM/Venturi Mask
- Foley kit- supply cart
- Straight Catheter Kit supply cart
- Incentive Spirometer
- Fluids supply cart
- IV start kit
- IV tubing- med cart NSS @ 50 ml/hr
- IVPB Tubing- med cart
- IV Pump
- Feeding Pump
- Crash cart with airway devices and emergency medications-
  - Defibrillator/Pacer
  - Suction in package supply cart
  - Other: PPE; hand sanitizer; phone?; thermometer; call bell; rolling white board in classroom, glucosim, sim therm, doppler, ABG kit, ECG patches and monitor, Blood tubes (purple, yellow, gray, ice and cup)

**Roles/Guidelines for Roles:**
- Primary Nurse
- Secondary Nurse
- Family Member #1
- Family Member #2

**Important Information Related to Roles:**
Behaviors expected in each role and what cues are permitted should be clearly communicated.

Learners in role of nurse should determine which assessments and interventions each will be
Observer(s)  Recorder(s)  Provider (physician/advanced practice nurse)Faculty will answer “phone” as provider  Respiratory Therapist  Anesthesia
Pharmacist  Lab Technician  Imaging Technician  Social Worker  Clergy  Unlicensed Assistive Personnel

**Prebriefing/Briefing**

**Simulation Pre-Brief:**

1. **These rules will be sent via email to the NGRN participants ahead of time to save time on day of scenario:**
   a. Review **Simulation Rules & Establish the Safe Container:**
   b. **THE BASIC ASSUMPTION from Center for Medical Simulation at Harvard**
   “We believe you are intelligent, capable, care about doing your best & want to improve”
   *Tell the NGRNs we promise to assume the best of you. That you are motivated to learn, care about doing your best, and want to improve.*
   b. We ask that you assume the best of us. We have worked hard to create a realistic clinical scenario that will provide you with an engaging and productive learning opportunity.
   c. We ask that you be curious, respectful, courteous, and confidential.
   d. **Safe learning experience & the safe container:**-Planet Fitness Rules - This is the no judgement zone! We expect you to make mistakes. You are learning. We see mistakes as opportunities for learning. The safe container means that the sim lab is a place to feel safe, valued, respected but not necessarily comfortable. We will push you to the edge of your knowledge and comfort level as this is where optimal learning will occur.
   e. **Confidential**- to protect students, scenarios, and realism. **VEGAS RULES:**
   “What happens in sim stays in sim”. Do not discuss details of sim experience. We want all students to have the same learning experience. These scenarios have been developed specifically with our student needs in mind. We also will not discuss student performance, so confidentiality keeps student actions in sim safe. **student confidentiality forms**
   f. **Fiction Contract**- We have done our best to create a clinically realistic scenario, but you will need to suspend disbelief to some extent to get the most out of this scenario/learning experience. We will purposefully leave safety issues undone so you must fix them. For example, leaving the bed unlocked, etc.

**Primary RN; Secondary RN & observers.**
Instructor will answer phone or walk in room as RRT and MD
Explain that you will pre-brief for approximately 15 minutes together. Then the group will move to the simulation room where 2 NGRNs will be the primary and secondary RN and the remainder will be observers. The scenario will last approximately 20-25 minutes and then debrief will occur in the classroom.

Review scenario objectives - This is a chance for them to practice applying what they learned.

Simulation Learning Objectives
At the end of this clinical experience, the student will be able to:

• Provides safe and effective nursing care to a deteriorating patient.
• Performs comprehensive and accurate nursing assessments.
• Recognizes a change in client condition.
• Prioritizes focused assessments with a change in client condition.
• Prioritizes the delivery of nursing interventions for a client with a change in condition.
• Uses resources to deliver quality patient care.
• Provides standardized communication to interdisciplinary team.

Roles:

• Your patient will be a high-fidelity manikin
• Explain the nursing roles:
• Both will be RNs- a primary and a secondary assigned specifically.
• Observer Role: The Observer role is to observe the scenario unfold and document on the provided observer sheets what they see for each section. The observer will offer a unique perspective to post brief discussion. Reassure them that evidence shows that the observer learns as much.

Now give report on patient - WHERE WE WILL BEGIN PRE-BRIEF DAY OF:

5. Report Students Will Receive Before Simulation
   Scenario Time: 08:00
   Person providing report:
   Off-going RN
   John Brown is a 71-year-old Caucasian male patient admitted yesterday afternoon from the ED for exacerbation of his heart failure and a mild pleural effusion. He was brought to the ED by his wife Amy. He had C/O dyspnea on exertion the past few weeks, initially trouble walking to the mailbox and now cannot walk up stairs. He has been admitted with this issue before. He was diuresed in the ED and admitted to us. Allergy to PCN and Shellfish with a weight today of 213. Current VS are 120/70; 90; 24; 93-95% on 4 LPM Nasal Cannula. He is A&Ox4. He has crackles bilaterally and a non-productive cough. Sinus tachycardia on monitor. Other cardiac assessments are fine. He has a Right PIV saline lock. He is getting Lasix BID, metoprolol for HTN, sliding scale insulin, magnesium and potassium. His finger stick last night was 180 so I gave him 2 units. I gave him his lovenox last night and he has his stockings on and he can get OOB as tolerated. We are waiting on him to get an echocardiogram today and also to go to interventional radiology for a thoracentesis. I am sure his Pox will be better after the thoracentesis. He is due for his morning meds and finger stick. Maybe giving him his Lasix again will help too.

After report allow the group to review the chart and come up with a plan. No real time for these questions:
a. **What do we know about this patient that is relevant? How does this help you plan nursing care? What other information would you like to know and why?**
b. **What are the top nursing assessment priorities that you anticipate? Why?**
c. **Which nursing interventions do you anticipate for this patient? Why?**
d. **What are the potential complications/risks for this patient and how do you plan to mitigate those risks?**

2. **Take the students to the simulation room and orient them to the simulation room and manikin:**
   a. Patient Chart & Documentation
   b. Sim Room layout
   c. Clean supply cart and supplies on cart and how they are organized
   d. Bedside tables- open each drawer
   e. Bedside monitor with pulse ox cable
   f. Phone to call provider with numbers to call-Tell them if they have to call they should actually dial the number.
   g. Simulator Functions:
      a. Blood pressure with his cuff on the left
      b. Lung sounds anterior and posterior-5 anterior sites and 6 posterior sites;
         Heart sounds 4 auscultation spots anterior; bowel sounds
      c. You can infuse IVF
      d. Bilateral Pulses: carotid; brachial (Left only); radial; femoral; posterior tibial; dorsalis pedis
      e. Pupils respond to light reflex
      f. Any other assessment you would like, please ask for it and it will be provided

**Scenario:**
- Sometimes in sim we progress them a little faster for learning- but this can also happen in real life
- ER 13:00  Floor 15:00  Scenario is 0730 next day (They are day shift)
Scenario Progression Outline

**John Brown 12/23/51 PCN/Shellfish MR #: 38545921 Room = N211**

<table>
<thead>
<tr>
<th>Timing (approx.)</th>
<th>Manikin Actions</th>
<th>Expected Interventions</th>
<th>May Use the Following Cues/Patient Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time is 07:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>0-5 minutes</strong></td>
<td><strong>Initial Settings:</strong></td>
<td>• Wash hands</td>
<td>Role member providing cue: Sim Tech/Faculty running manikin</td>
</tr>
<tr>
<td></td>
<td>• Patient is awake, alert and cooperative lying somewhat flat in bed. Didn’t sleep well. RNs are just waking them up. Bed locked. Call bell on floor. O2 NC can be hooked up or not for safety. Can be on CRM.</td>
<td>• Introduce self/Explains Role</td>
<td><strong>Cue:</strong></td>
</tr>
<tr>
<td></td>
<td>• BP 120/70 (BP cuff should be off)</td>
<td>• Identify patient with 2 identifiers</td>
<td>• Patient can cough (hurts when he coughs)</td>
</tr>
<tr>
<td></td>
<td>• HR 100</td>
<td>• Assess for allergies</td>
<td>• I didn’t sleep well and feel tired</td>
</tr>
<tr>
<td></td>
<td>• RR 24</td>
<td>• Safety Checks (Can be Secondary RN)</td>
<td>• Patient can say they are hungry and want to eat - tray available but needs insulin first to force issue of prioritization</td>
</tr>
<tr>
<td></td>
<td>• POX 94% on NC at 4 lpm</td>
<td>o Lower bed</td>
<td>• If no patient ID - patient can say “Don’t you have to ask my name every time you come in?”</td>
</tr>
<tr>
<td></td>
<td>• Temp 99F</td>
<td>o Call bell</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Teds on</td>
<td>o Raise top 2 side rails</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 30 mls or so of urine in urinal on end of bed</td>
<td>o Emergency equipment check</td>
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<tr>
<td></td>
<td></td>
<td>o Remove clutter</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>o Double check IVF vs orders</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>o CRM alarm volume and limits - if not on CRM places on CRM. Compares manual VS to CRM</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>5-15 minutes</strong></td>
<td><strong>GCS 15/15/A&amp;Ox4</strong></td>
<td>• Ask patient how they are feeling. Any complaints? Sit patient up a bit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Bibasilar crackles and diminished breath sounds with a non-productive cough</strong></td>
<td>• Vital Signs (Can be done by secondary RN)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• May assign secondary RN to do finger stick and insulin/ furosemide and metoprolol administration</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Head to Toe Assessment by Primary RN-notes relevant findings of adventitious Lung</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Signs of subtle confusion - Did you say you were my nurse?</td>
<td></td>
</tr>
</tbody>
</table>
NEW GRADUATE NURSE PATIENT DETERIORATION SIMULATION

**15-20 minutes Change in condition**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muffled Heart sounds - lower the manikin sounds (difficult to hear)</td>
<td>Sounds, increasing O2 requirements, trending VS, Lower/Muffled Heart Sounds</td>
</tr>
<tr>
<td>Peripheral pulses 2+</td>
<td>Might call MD/Resource RN</td>
</tr>
<tr>
<td>Cap refill 3 seconds</td>
<td>Might ask patient if they have urinated or want to do a bladder scan</td>
</tr>
<tr>
<td>Bowel sounds present x 4 quadrants</td>
<td></td>
</tr>
<tr>
<td>skin pale, warm and dry, lower leg 3+ edema</td>
<td></td>
</tr>
<tr>
<td>Right PIV with NSS @ 50 ml/hr</td>
<td>If they have ask if you have gone to the bathroom you can say you did overnight and do not have to now</td>
</tr>
</tbody>
</table>

**Changes:**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient restless, irritable, anxious, can c/o chest pain (left side) when breathe in cough makes it worse or lying on left side makes it worse. sitting up and inspiration make it worse.</td>
<td>Primary has secondary RN repeat VS</td>
</tr>
<tr>
<td>Lung sounds have progressed to rhonchi</td>
<td>Primary RN conducts an ABCDE assessment with change in condition</td>
</tr>
<tr>
<td>GCS14/15/A&amp;Ox4</td>
<td>Primary delegates to secondary to activate RRT</td>
</tr>
<tr>
<td>BP 100/66</td>
<td>A- airway ok, patient can talk</td>
</tr>
<tr>
<td>HR 120</td>
<td>B-Notes increased RR, decreased Pox, LS now rhonchi, sits HOB up to Fowler’s/High Fowler’s, Applies NRBM @ 15 LPM. May ask secondary RN to get portable CXR but not required.</td>
</tr>
<tr>
<td>RR 31</td>
<td>C-Notes decreased BP, altered Neuro, increased HR, RR, decreased Pox, Chest pain, edema. Ask secondary RN to get a 12 lead EKG but not required.</td>
</tr>
<tr>
<td>POX 89% on 4 LPM NC</td>
<td>D-GCS assessment and LOC ?s Notes change. Checks PERRL.</td>
</tr>
<tr>
<td>Temp same</td>
<td>E- expose patient and assess while maintaining privacy and thermoregulation. Consider causes? Secondary could review medical</td>
</tr>
<tr>
<td>Cap refill 3-4 secs</td>
<td></td>
</tr>
</tbody>
</table>

Confusion: could mention have to call your son John. Could the nurse get his cell phone for him?

If no assessment or recognition of change, can cue by being increasingly agitated or asking “Am I ok? I don’t feel well/right”

Cue: If they lie him flat- he can say it hurts his chest too bad and he cannot breathe so he has to sit up
<table>
<thead>
<tr>
<th>Record. Consider sending labwork: CBC, CMP, lactate, ESR, CRP, ABG</th>
<th>May direct secondary RN to check BG. (BG would be 130)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• I&amp;O unknown-may ask for a foley. With crackles going to rhonchi they should elevate HOB, elevate legs due to hypotension and stop IVF. RN could ask patient have you peed? Do you need to?</td>
<td>• Secondary can reassure patient and keep them calm</td>
</tr>
<tr>
<td>I&amp;O unknown-may ask for a foley. With crackles going to rhonchi they should elevate HOB, elevate legs due to hypotension and stop IVF. RN could ask patient have you peed? Do you need to?</td>
<td>RRT arrives (educator or other confederate can play critical care RN)</td>
</tr>
<tr>
<td>• I-Hello, My name is and I am the RN caring for John Brown on the tele unit.</td>
<td>• I-Hello, My name is and I am the RN caring for John Brown on the tele unit.</td>
</tr>
<tr>
<td>• S-He is in distress and need help right away because he is deteriorating</td>
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</tr>
<tr>
<td>• B-He was admitted yesterday for increasing shortness of breath. He has heart failure, and a pleural effusion. He has been waiting for a thoracentesis in IR</td>
<td>• B-He was admitted yesterday for increasing shortness of breath. He has heart failure, and a pleural effusion. He has been waiting for a thoracentesis in IR</td>
</tr>
<tr>
<td>• A-He was A&amp;Ox4 and in the past 30 minutes is now A&amp;O x2; RR has gone from 24 to 31 and his O2 requirements have gone from 93-95% on 4 LPM NC to now he is 89% on NRB. He has progressed from crackles to rhonchi, heart sounds muffled, sinus tachycardia at 120 bpm, with pat c/o of</td>
<td>• A-He was A&amp;Ox4 and in the past 30 minutes is now A&amp;O x2; RR has gone from 24 to 31 and his O2 requirements have gone from 93-95% on 4 LPM NC to now he is 89% on NRB. He has progressed from crackles to rhonchi, heart sounds muffled, sinus tachycardia at 120 bpm, with pat c/o of</td>
</tr>
<tr>
<td>• RRT RN can ask for SBAR if one is not offered</td>
<td>• RRT RN can ask for SBAR if one is not offered</td>
</tr>
<tr>
<td>• If it is not complete or clear- can ask clarifying questions</td>
<td>• If it is not complete or clear- can ask clarifying questions</td>
</tr>
<tr>
<td>• Cannot lie them flat they will code</td>
<td>• Cannot lie them flat they will code</td>
</tr>
</tbody>
</table>
chest pain on inspiration, BP has gone from 120/70 to 100/66—and his cap refill time is now 3-4 seconds in his extremities. Urine output is unknown-on I&O 20 ml/hr and with hypotension I have held the am furosemide and amlodipine and elevated his legs
- R-Can someone come right away to assist? I will continue to closely monitor…

<table>
<thead>
<tr>
<th>15-20 Minutes</th>
<th>Changes If no intervention/RRT activation or recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Patient drowsy, lethargic. Opens eyes to sound/voice/confused/obeys commands but sluggishly</td>
</tr>
<tr>
<td></td>
<td>• GCS 13/15/ A&amp;O x 2(person place only)</td>
</tr>
<tr>
<td></td>
<td>• BP 90/60 or drop a little more</td>
</tr>
<tr>
<td></td>
<td>• HR 130</td>
</tr>
<tr>
<td></td>
<td>• RR 30s</td>
</tr>
<tr>
<td></td>
<td>• Pox 89-92% on NRBM at 15 LPM if they apply it</td>
</tr>
</tbody>
</table>

- Stay with patient
- Continuous assessments
- Provide ISBAR to RRT RN
- Stay with patient and team to answer questions
- Reassure patient

- Hopefully CRM alarms would cue

Debrief: (50 minutes)

1. Where majority of your learning occurs.
2. Be positive and respectful in your feedback with each other. This will help you develop these communication/feedback skills. We will discuss what went well, what decisions were made, and why, and what performance could be improved.
3. Everyone participates in the discussion. All perspectives are important and we will all learn from each other. Students are expected to do the majority of the talking during debrief.
4. You need to become self-reflective and identify your strengths, weaknesses, and how you plan to improve your performance in the future. You need to learn to identify what biases and assumptions you may carry that could impact your nursing care. We will ask you to explain what underlying thinking was driving your clinical decisions.
Debriefing/Guided Reflection Questions (Use DML Worksheets & Attached Instructor Guide)

Set Clinical Context (Recognize cues and distinguish relevant data from irrelevant)
Did you understand what happened to this patient in this scenario? (analyze and recognize patterns, etc.) What is important for the RN to know about this patient?
What placed this patient at a higher risk of deterioration?

Nursing Assessment/Gathering Cues/Patient Findings
Were you able to conduct a complete and accurate nursing assessment on initial contact with the patient? Why or why not? How about when the patient’s condition changed?
Do you feel confident in your nursing assessment skills? Why or why not?
Were you able to prioritize your assessment appropriately? Why or why not? How?
Did you know how often to assess? How did you know this?
Which patient assessments met Suburban’s RRT activation criteria? Did you activate based on knowledge of these criteria or for another reason?

Analyzing/Prioritizing/Planning/Understanding Cues/Nursing Interventions with associated patient responses
Did you feel as though you understood what was happening with your patient in the moment? Why or why not?
Did you provide appropriately prioritized nursing interventions? Why or why not? How did you know what to do? What knowledge, skill or experience did you use in this experience?
What decisions did you make? Did personal values, assumptions, or beliefs influence your decisions?
How did the patient respond to your interventions? Were they evidence-based? How did you know they were?

Safety/Potential Risks
Were you able to maintain patient safety for the patient during this scenario? How?
What did you do well and what did you miss? How could what you missed impact the patient?

Teamwork/Collaboration/Communication
What went well? Why?
What could have gone better? Why? How?
Were you able to do a good ISBAR which appropriately communicated the patients situation and needs?

Extend/Anticipate
What would happen next with this patient? (On RRT arrival?)
Can you predict what would happen to this patient had their change in condition not been recognized?

Final question
What is your biggest take-away or take-home message from this experience today that you will use in your future nursing practice?

Assessment Plan: Formative
Simulation Design Scale completed after pilot testing
Participant:
- Kirkpatrick Level I (Student Reactions): Student Satisfaction and Self-Confidence in Learning Instrument to be completed after each scenario
• Kirkpatrick Level II (Student Learning):
• Kirkpatrick Level III (Student Behavior): Creighton Competency Evaluation Instrument after each scenario
Acute Care Hospital
History & Physical Form
Hospital Admit Note

Brown, John
MR#38545921
DOB 12/23/51

Patient Name Brown, John  Date of Birth 12/23/51  Date of Admission 4/19/22  Weight 210 lbs.  Height 5’10” Allergies: PCN/Shellfish  Chief Compliant: Informant: Patient/Wife

History of Present Illness:
Patient brought in to the Emergency Department by his wife with c/o dyspnea on exertion for the past few weeks. He initially had trouble walking to his mailbox, but this has worsened to difficulty getting up stairs. He has been sleeping in the living room chair and complains of some lower extremity swelling. Mr. Brown is also complaining of chest pain during inspiration. Vital Signs on presentation to the ED: 89% on Room Air. RR 33 with moderate respiratory distress. HR 100; BP 140/80; Temp 100.8 PO F. Chest Xray suggestive of bilateral interstitial fluid suggestive of pulmonary edema with a mild to moderate pleural effusion and some cardiomegaly. Patient admitted to Telemetry floor with orders for diuresis, nasal cannula to maintain SPO2 greater than 94%, and to receive thoracentesis in interventional radiology. placed on Nasal Cannula to maintain SPO2>94%, given diuresis orders and admitted to the Tele floor. ER vital signs 100.8F; 33 RR; 100 HR; 140/80; 89% RA; mod resp distress, bilateral lower extremity swelling

Past Medical/Surgical History:
Heart Failure-hospitalized twice in 2021 for HF exacerbation but did not require critical care
Hypertension
Type 2 Diabetes Mellitus

Current Medications:
Metoprolol 50 mg PO BID
Glucophage XR 1000mg PO BID
Aspirin 80 mg PO Daily
MVI PO Daily

Social History: Lives with wife Amy. Has 1 adult child who lives nearby (Sophia, age 39). Has 1 deceased child who died in a car crash 1 year ago. (John age 40) Patient is a retired history schoolteacher. Smoker x 30 years at 2 ppd-quit 3 years ago. Drinks socially. Sedentary lifestyle. Regular diet, tries to limit salt. Immunizations up to date.

Review of Systems:
General: slightly febrile. Lower extremity 3+ edema
Endocrine: Type 2 DM
Hematologic: N/A
Skin: N/A
Eyes: wears Rx glasses, pupils 4 mm
ENT: N/A
Oral: N/A
Neurologic: PERRLA, denies syncope or dizziness. A&Ox4. No EOM.
**Cardiovascular:** Chest pain, especially on inspiration; sinus tachycardia; cardiomegaly on CXR, S1S2, 2+ radial and pedal pulses, cap refill 2 seconds. Skin warm, pink, dry. 3+ edema in lower extremities. Hypertension treated with Metoprolol 50 mg PO BID

**Pulmonary:** dyspnea, RR 33, cough, non-productive, bibasilar crackles with diminished breath sounds. Bilateral interstitial fluid on Xray suggestive of pulmonary edema, effusion

**Gastrointestinal:** Abdomen soft, non-tender with bowel sounds auscultated in all quadrants, no masses or lesions. Last BM yesterday Denies nausea and vomiting.

**Genitourinary:** urinating clear yellow urine. Denies frequency, nocturia, dysuria.

**Musculoskeletal:** denies pain, full ROM and strength 5+ bilaterally.

**Psychiatric:** denies depression/anxiety.

**Vitals:** Temp100.8 HR 100 RR33 BP 140/80 Height 5’10” Weight210lbs POX89% RA Pain 2/10 chest pain

---

Schwaab
### Patient Information

**Name:** John Brown  
**Room:**  
**MR #:** 38545921  
**Date of Birth:** 12/23/51  
**MD:** Dr. Schwaab  

**Allergy:** PCN/Shellfish  
**Diet:** Cardiac/Diabetic

### Medication Information

<table>
<thead>
<tr>
<th>ORD DATE</th>
<th>EXP DATE</th>
<th>MEDICATION – DOSAGE – FREQUENCY – RT OF ADM</th>
<th>HR</th>
<th>DATES GIVEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>yesterday</td>
<td></td>
<td>Furosemide 40 mg IV BID</td>
<td>0800</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>yesterday</td>
<td></td>
<td>Metoprolol 50 mg PO BID</td>
<td>0800</td>
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<td></td>
<td></td>
<td></td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>yesterday</td>
<td></td>
<td>Subcutaneous Sliding Scale Novolin R Insulin (goal of 110-180):AC and at bedtime</td>
<td>0800</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BG &gt; 400 12 units, NHO, repeat BG in 2 hours</td>
<td>1200</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>BG 351-400 10 units</td>
<td>1700</td>
<td>NR</td>
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<td></td>
<td></td>
<td>BG 301-350 7 units</td>
<td>1700</td>
<td>NR</td>
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<td></td>
<td></td>
<td>BG 251-300 5 units</td>
<td>1700</td>
<td>NR</td>
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<td></td>
<td>BG 201-250 3 units</td>
<td>1700</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BG 151-200 2 units</td>
<td>1700</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BG 70-150 0 units</td>
<td>1700</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BG &lt; 70 Initiate hypoglycemia protocol</td>
<td>1700</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BG</td>
<td>2200</td>
<td>NR</td>
</tr>
<tr>
<td>yesterday</td>
<td></td>
<td>Enoxaparin 40 mg Subcut Q bedtime</td>
<td>2200</td>
<td></td>
</tr>
<tr>
<td>yesterday</td>
<td></td>
<td>Magnesium replacement 40 mEq PO Q am</td>
<td>0800</td>
<td></td>
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<tr>
<td>yesterday</td>
<td></td>
<td>Potassium Chloride replacement 20 mEq tab PO BID</td>
<td>0800</td>
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<td></td>
<td></td>
<td>2000</td>
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</tbody>
</table>

**NR Nancy Rogers, RN**
### Patient Name: John Brown  
**DOB:** 12/23/51  
**Age:** 71  
**Height:** 5’10”  
**Weight:**  

**Diagnosis:** HF Exacerbation/Pleural Effusion  
**MR#:** 38545921  

**Allergies & Sensitivities:** PCN/Shellfish

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>PHYSICIAN ORDER &amp; SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yesterday</td>
<td>1500</td>
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<td>Diet: Cardiac/Diabetic</td>
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<td>CXR tomorrow am</td>
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<td>Anti-embolism stockings to lower extremities</td>
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<td>Continuous telemetry and pulse oximetry</td>
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<td>Supplemental Oxygen via Nasal Cannula therapy to maintain SPO2 &gt; 94%, wean FIO2 to maintain SPO2 &gt; 94%</td>
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<td>Finger sticks AC and Q bedtime</td>
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<td>QAM BNP, CBC c diff, BMP, Mg, Phos</td>
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<td>Lactic Acid, ABG and Blood Cultures Now</td>
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### Medication Orders

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<th>Dose/Route</th>
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<td>Furosemide 40 mg IV BID</td>
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<td>Metoprolol 50 mg PO BID</td>
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<td>Subcutaneous Sliding Scale Novolin R Insulin: (with goal of 110-180) AC and Qbedtime</td>
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<td>BG &gt; 400</td>
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**PHYSICIAN/ PROVIDER SIGNATURE**

Dr. Schwaab
Brown, John
12/23/51
**MR #:** 38545921
XRAY Report 4/19/22 13:30
Anterior Chest View

Comparison: None
Indication: Shortness of breath; Chest pain on inspiration
Findings: Bilateral interstitial fluid, cardiomegaly
Impression: Pulmonary edema, Mild to moderate pleural effusion
Read by Robert Victor, MD
# Vital Sign Flowsheet

**Patient:** Brown, John  
**MR#:** 38545921  
**DOB:** 12/23/51

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<tr>
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<th>Pain Scale</th>
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**Pain Scales:**

**English**

0 = NO HURT  
2 = HURTS LITTLE BIT  
4 = HURTS LITTLE MORE  
6 = HURTS EVEN MORE  
8 = HURTS WAY MORE  
10 = HURTS WORST

**Spanish**

NO DOLOR  
MUY LEVE  
LEVE  
MODERADA  
SEVERA  
MUY SEVERA

0 = No pain  
1 = Moderate pain  
5 = Worst possible pain
**Patient Information**

- **Patient:** Brown, John
- **MR#:** 38545921
- **DOB:** 12/23/51

---

### Acute Care Hospital

#### Vital Sign Flowsheet

**Date:** Today

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<th>Time</th>
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<th>R</th>
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<th>Pulse ox</th>
<th>Pain Scale</th>
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#### Pain Scales:

**English**

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<td>0</td>
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</tr>
<tr>
<td>2</td>
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</tr>
<tr>
<td>4</td>
<td>Hurts Little</td>
</tr>
<tr>
<td>6</td>
<td>Hurts Even</td>
</tr>
<tr>
<td>8</td>
<td>Hurts Whole Lot</td>
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<td>Hurts Worry</td>
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**Spanish**

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<td>2</td>
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<tr>
<td>4</td>
<td>Leve</td>
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<td>Moderada</td>
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<td>Moderate</td>
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<td>2</td>
<td>Worst possible</td>
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*Image of the pain scale chart.*
Fluid Intake and Output Record

Name: Brown, John      DOB: 12/23/51      MR#: 38545921

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<td>360 ml</td>
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Juice glass – 110 mL
Foam cup – 150 mL
8 oz Soda can – 240 mL
Milk carton – 120 mL

Jell-O – 110 mL
Ice cream – 80 mL
Pudding – 85 mL
Yogurt – 95 mL

Ensure – 200 mL
Soup – 120 mL
Coffee/tea – 180 mL

Milkshake carton –
**Patient Lab Sheet**

**Name:** Brown, John  
**DOB:** 12/23/51  
**MR#:** 38545921  
**Room:** Tele 1

### **HEMATOLOGY**

#### CBC:
- **WBC/Lymphocytes**  
  4,000-10,000 μL or mm³  
  13000  
  13000  
- **Neutrophils (polys/segs)**  
  > 75%  
  82  
  82  
- **Bands**  
  < 10%  
  7  
  7  
- **RBC/Erythrocytes**  
  4.2 – 5.9 x 10⁶/μL  
  4.6  
  4.4  
- **HGB**  
  12 – 17 g/dL  
  12.6  
  12.3  
- **HCT**  
  36 – 51%  
  38  
  36  
- **Absolute Neutrophil Count (ANC)**  
  >1000 μL or mm³  
  >1000  
  >1000  
- **Platelets**  
  >150,000 – <350,000 μL or mm³  
  204  
  202

### **COAGULATION**

- **Bleeding Time**  
  <10 minutes  
  <10  
  <10  
- **PT (Prothrombin Time)**  
  11 – 12.5 seconds  
  11.6  
  11.7  
- **INR (International Normalized Ratio)**  
  0.8 – 1.1  
  0.9  
  0.9  
- **aPTT**  
  25 – 35 seconds  
  27  
  28  
- **PTT**  
  60 – 70 seconds  
  62  
  61

### **IMMUNE & INFLAMMATORY**

- **CRP (C-Reactive Protein)**  
  <1.0 mg/dL  
  1.7  
  1.7

### **FLUID, ELECTROLYTE & RENAL**

#### URINE
- **Urine Specific Gravity**  
  1.005 – 1.030  
  1.010  
  1.010

#### METABOLIC PANEL
- **BUN**  
  8 – 20 mg/dL  
  21  
  22
- **Creatinine**  
  0.7 – 1.3 mg/dL  
  1.3  
  1.3

#### Electrolytes
- **K (Potassium)**  
  3.5 – 5.0 mEq/L  
  3.6  
  3.2
- **Na (Sodium)**  
  136 – 145 mEq/L  
  137  
  139
- **Ca (Calcium)**  
  9 – 10.5 mg/dL  
  9.6  
  9.8
- **Cl (Chloride)**  
  98 – 106 mEq/L  
  99  
  100
- **Mg (Magnesium)**  
  1.5 – 2.4 mg/dL  
  1.8  
  1.9
- **Phosphorus**  
  3.0 – 4.5 mg/dL  
  3.4  
  3.4
- **Glucose**  
  70 – 100 mg/dL  
  150  
  128
- **Protein – Total**  
  6 – 7.8 g/dL  
  6.4  
  6.7
- **Protein – Albumin**  
  3.5 – 5.0 g/dL  
  4.0  
  4.1

### **FLUID STATUS**
- **Serum Osmolality**  
  275 – 295 mOsm/kg  
  284  
  284

### **CARDIOPULMONARY**

#### ABGs
- **pH**  
  7.35 – 7.45  
  7.5  
- **pO₂**  
  80 – 100 mmHg  
  89
- **pCO₂**  
  35 – 45 mmHg  
  32
- **HCO₃⁻**  
  22 – 26 mEq/L  
  22
- **O₂ saturation**  
  >94%  
  89%

#### BNP (Brain natriuretic peptide)
- <100 pg/mL  
  492  
  492

### **METABOLISM & WASTE**

#### Ammonia
- 40 – 80 mcg/dL  
  43

#### Bilirubin – Total
- 0.3 – 1.2 mg/dL  
  0.6
<table>
<thead>
<tr>
<th>Test</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSH (Thyroid Stimulating Hormone)</td>
<td>0.5 – 5 mU/L</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>ALK PHOSPHATASE</td>
<td>30-120</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td><strong>ENZYMES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALP (Alkaline Phosphatase)</td>
<td>36 – 92 U/L</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>ALT (Aminotransferase, Alanine)/SGTP</td>
<td>0 – 35 U/L</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>AST (Aminotransferase, Aspartate)/SGOT</td>
<td>0 – 35 U/L</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Amylase</td>
<td>0 – 130 U/L</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>CPK</td>
<td>30 – 170 U/L</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>LDH</td>
<td>60 – 100 U/L</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Lipase</td>
<td>&lt;95 U/L</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Troponin I</td>
<td>&lt;0.5 ng/mL</td>
<td>0.9</td>
<td>0.8</td>
</tr>
<tr>
<td>Troponin T</td>
<td>&lt;0.10 ng/mL</td>
<td>0.12</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>THERAPEUTIC DRUG LEVELS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak and Trough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digoxin</td>
<td>0.8 – 2.0 ng/mL</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lithium</td>
<td>0.6 – 1.2 mEq/L</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>ADDITIONAL CHEMISTRIES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol</td>
<td>&lt;200 mg/dL</td>
<td>204</td>
<td></td>
</tr>
<tr>
<td>HDL-C</td>
<td>♂ 35 – 65 mg/dL</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>♀ 35 – 80 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDL-C</td>
<td>&lt;100 mg/dL</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>CO2 (venous)</td>
<td>23 – 30 mmol/L</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>HbA1c (Glycohemoglobin)</td>
<td>&lt; or = 5.6%</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>Lactic Acid (venous)</td>
<td>0.5 – 2.2 mEq/L</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Phosphat (PO4)</td>
<td>2.7 – 4.5 mg/dL</td>
<td>3.4</td>
<td></td>
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<tr>
<td>Triglycerides</td>
<td>&lt;150 mg/dL</td>
<td>153</td>
<td></td>
</tr>
<tr>
<td><strong>BLOOD BANK</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABO-RH</td>
<td></td>
<td>B+</td>
<td></td>
</tr>
<tr>
<td><strong>URINALYSIS:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLOR</td>
<td>Pale yellow to amber</td>
<td>Pale yellow</td>
<td></td>
</tr>
<tr>
<td>APPEARANCE</td>
<td>Clear to slightly hazy</td>
<td>Clear</td>
<td></td>
</tr>
<tr>
<td>SPECIFIC GRAVITY*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEUKOCYTE ESTERASE</td>
<td>Neg.</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>NITRITES</td>
<td>Neg.</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>PH</td>
<td>4.5 – 8.0</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>BLOOD/OCCULT</td>
<td>Neg.</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>PROTEIN</td>
<td>Neg.</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>GLUCOSE</td>
<td>Neg.</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>KETONES</td>
<td>Neg.</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>WBC’S</td>
<td>Negative or Rare</td>
<td>Rare</td>
<td></td>
</tr>
<tr>
<td>RBC’S</td>
<td>Negative or Rare</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td><strong>TOXICOLOGY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amphetamines</td>
<td>Negative</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>Barbiturates</td>
<td>Negative</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>Blood Alcohol (BAL)</td>
<td>0 – 50 mg/dL</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Cannabinoids</td>
<td>Negative</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td>Negative</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>Opioids</td>
<td>Negative</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td>Phencyclidine (PCP)</td>
<td>Negative</td>
<td>Neg</td>
<td></td>
</tr>
<tr>
<td><strong>DRUG LEVELS:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digoxin</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gentamicin Peak (1/2 hour after dose)</td>
<td>5 – 10 mcg/mL</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Medication</td>
<td>Level/Range</td>
<td>Status</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Gentamicin Trough</td>
<td>&lt;12 mcg/mL</td>
<td>X</td>
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</tr>
<tr>
<td>Lithium</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>10 – 30 mcg/mL</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Phenytoin</td>
<td>10 – 20 mcg/mL</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vancomycin (trough)</td>
<td>5 – 15 mcg/mL</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vitamin B₁₂</td>
<td>160 – 950 pg/mL</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Blood Cultures</td>
<td></td>
<td>pending</td>
<td></td>
</tr>
</tbody>
</table>
Brown, John
DOB: 12/23/51
MR#: 38545921
Date: 4/19/22
Time: 13:00

HR: 103 bpm
PR: 0.16 s
QRS: 0.06 s

Unconfirmed EKG
Sinus Tachycardia
QT: 0.36 s
NEW GRADUATE NURSE PATIENT DETERIORATION SIMULATION

(EKG for during scenario if they request one)-

Brown, John
DOB: 12/23/51
MR#: 38545921
Date: 4/20/22
Time: 08:15

HR: 154
PR: 0.12s
QRS: 0.10s
QT: 0.32s

Unconfirmed EKG
Sinus Tachycardia, Low voltage QRS complexes, electrical alternans

DOB: 12/23/51
PR: 0.12s
QR: 0.10s
QT: 0.32s
Appendix M

Scenario Observation Form

Deteriorating Patient Simulation Scenario Observer Sheet

Instructions: Under each of the topics below, please identify the things you observed which were done well (color green), the things you felt were missed or done incorrectly (color red), and what you might do differently (color blue). You will be asked to write this on a whiteboard in debrief as we discuss what happened in the case. Thank you!

1. What happened to the patient in this scenario? What is important for the RN to know about this patient?
2. Nursing Priorities for this patient? (based on report/based on assessment)
3. Patient Safety (room safety; med safety, etc.)
4. Nursing Assessments/Patient findings (in order of how they were done. Reflect on if they were complete? If they were done properly and if they were prioritized)
5. Nursing Interventions that occurred in the scenario (in order of how they were done and with associated patient responses)
6. Teamwork & Collaboration/Communication (i.e. RN to RN communication and delegation; Did primary RN delegate well? ISBAR to RRT)

ISBAR Checklist

<table>
<thead>
<tr>
<th>Skill</th>
<th>Yes/No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-RN identified self and role</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-RN stated current situation, patient problem and why they needed help</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-RN gave significant background from admission and relevant PMH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-RN provided priority/relevant assessments (vital signs and ABCDE assessment findings)</td>
<td>Yes/No</td>
<td></td>
</tr>
<tr>
<td>R-RN provided a recommendation of what they would do next and what they needed from who they were calling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix N

Creighton Competency Worksheet

Deteriorating Patient Simulation – Spring 2022
Minimum Expected Behaviors to Demonstrate Competency
Keep in mind the level of the graduate and the learning outcomes. May obtain point for recognition during debriefing

ASSESSMENT Discussion Worksheet

<table>
<thead>
<tr>
<th>Obtains Pertinent Data (Must complete all 3 to receive point)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Obtain subjective data from the patient (any pain, hurts when coughs, did not sleep well)</td>
</tr>
<tr>
<td>• Obtains initial head to toe assessment on first contact (Minimum required=Neuro-A&amp;Ox4 and PERRL; lung sounds in all lobes; heart sounds in 4 valve sites; heart rhythm on monitor; bowel sounds; radial and pedal pulses, edema, skin color and temp and cap refill)</td>
</tr>
<tr>
<td>• Full set of Vital Signs-Temp, POX, HR, RR, BP-best if manually performed counting for 60 seconds; however, credit given if obtains from monitor</td>
</tr>
</tbody>
</table>

Perform Follow-Up Assessments as Needed (On change of condition)

| Vital signs upon change in condition to include blood pressure, respiratory rate, pulse oximetry, heart rate (hope they do Temp BUT they receive full credit without it. Hope they count HR/RR but receives credit if obtained from monitor) |
| Assesses ABCDE on change in condition (minimum required below) |
| o A: Can pat talk? |
| o B: Lung sounds/RR/POX/Work of Breathing and symmetry |
| o C:HR/BP/Rhythm/Heart Sounds/radial and pedal pulses/cap refill |
| o D: Neuro/PERRL/A&Ox4 |
| o E: Temp |
**Assesses the Environment in an Orderly Manner/Safety**
- N/A for this scenario
**COMMUNICATION Discussion Worksheet**

**Communicates Effectively with Intra/Interprofessional Team (TeamSTEPPS, SBAR)**
- Communicates effectively with secondary RN (delegates appropriately)
- Communicate with RRT relaying pertinent data in ISBAR format:
  - **I:** Identify self, role, patient, and location (Receives point as long as they identify self, pat and location)
  - **S:** Cardiorespiratory compromise is occurring and that they need help. (They receive credit if they just say he is in distress.)
  - **B:** Admitted yesterday for SOB- dx with effusion and acute HF. Awaiting thoracentesis. PMH HF, HTN, DM Type 2 (Receives point as long as they mention medical DX and awaiting thoracentesis)
  - **A:** Neuro has changed from A&Ox4 to A&O x 2-3 in past 30 mins, RR has increased from 24 to 31, O2 requirements are increasing with Pox down to 89% on 4 LPM from 93-95%. Bibasilar crackles and diminished BS progressed to rhonchi, muffled heart sounds (still receive credit if they cannot identify low HS as this may be difficult with manikin), sinus tachycardia 120 bpm, chest pain, especially when he breathes in, I&O unclear - seems low and BP has gone from 120/70 to 100/66 and cap refill is now 3 secs. (Receives point as long as they mention BP/RR/POX/HR)
  - **R:** I have placed the patient on a NRB at 15 lpm, elevated legs and HOB to Semi-High Fowlers. Hypotensive so I held am dose of furosemide and metoprolol until I spoke with you and I have held IVF due to pulmonary status and unclear I&O. Can we get a bedside x-ray & echo/12 lead EKG and ABG? (may also ask for a foley for strict I&O)

**Communicates Effectively with Patient and Significant Other (verbal, nonverbal, teaching)**
- Introduce nursing team to the patient when they enter the room
- Utilize therapeutic communication techniques to calm, reassure, and educate the patient

**Documents Clearly, Concisely, & Accurately**
- N/A for this simulation scenario

**Responds to Abnormal Findings Appropriately**
- Critical interventions on Change in condition:
NEW GRADUATE NURSE PATIENT DETERIORATION SIMULATION

<table>
<thead>
<tr>
<th>Activates RRT by dialing 14 (This may occur right away if they note change in mental status, or within ABCDE assessment as they notice other activation criteria—they should have secondary hit button and they continue to assess and intervene)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positions patient in High Fowlers or Semi-Fowlers to promote oxygenation (rationale—lower POX, lung sounds progressed from crackles to rhonchi, increased RR)</td>
</tr>
<tr>
<td>Applies NRBM at 15 lpm and inflates bag before placing on patient</td>
</tr>
<tr>
<td>Elevates legs with decreasing BP but cannot lie patient flat (if they do not do they still receive points)</td>
</tr>
<tr>
<td>Holds IVF, metoprolol, furosemide and awaits RRT</td>
</tr>
</tbody>
</table>

- **Non-critical behaviors which we will not count in points, but the NGRN may do or ask for are:**
  - STAT Portable echocardiogram
  - STAT Portable CXR
  - STAT 12 lead EKG
  - ABG/Other labs

### Promotes Professionalism
- Arrive on time for the simulation experience prepared with the necessary equipment and supplies
- Professional in appearance
- Demonstrate professional behavior throughout the simulation experience
- Actively participate in the entire simulation experience (pre-briefing, assigned simulation role, and debriefing)

### CLINICAL JUDGMENT Discussion Worksheet

#### Interprets Vital Signs (T, P, R, BP, Pain)
- Recognizes hypotension, tachypnea, tachycardia, decreasing POX, increasing O2 requirements and chest pain

#### Interprets Lab Results
- Recognizes K of 3.1 and may hold furosemide or call to question this
- Recognize BNP of 492-associated with HF (nice to do but not necessary to receive points)
- Recognizes that patient has high WBC and bands- infection? Need for temp and monitoring.(nice but not required to receive full points)

**Interprets Subjective/Objective Data (recognizes relevant from irrelevant data)**
- **Subjective** - Chest pain on inspiration and patient statements of anxiety and not feeling good as sign of deterioration
- **Objective** - Notes deteriorating condition based on assessment data
- **Interprets lung sounds** & that he has not had thoracentesis yet (recognizing bibasilar crackles and diminished bilateral breath sounds and progressing with change in condition to rhonchi) as **fluid volume overload impacting oxygenation**
- **Notes perfusion abnormalities** of altered LOC, BP (especially since a HTN pat), HR and heart sounds, chest pain, may note muffled heart sounds, delayed cap refill, and decreased urine output & that he has not had his echo yet (Interprets decreased cardiac output or perfusion-identify potential causes?)
- **Recognize I&O mismatch and need for more info- where is the fluid going? Can they bladder scan? Ask patient if the can urinate? Need to recommend foley?**
- Interprets high bands and WBC- as potential for infection? (optional not counted in points)
- Recognition of tamponade not necessary as this is a rare condition- it is more important that they **recognize the patient is in distress, is deteriorating and needs focused assessments and interventions and to activate RRT**

**Prioritizes Appropriately (Order is important and demonstrates prioritization)**
- Escalates care/Activates RRT
- ABCDE assessment to collect more information on patient status to inform priority interventions
- Positions Patient in upright position to promote oxygenation
- Applies NRBM at 15 lpm with bag inflated
- Continuously monitors and stays at bedside

**Performs Evidence Based Interventions**
NEW GRADUATE NURSE PATIENT DETERIORATION SIMULATION

• Activates RRT based on evidence-based policy criteria
• Applies NRBM at 15 lpm—see EBP recommendations. Short term only, requires ABG and senior clinician review. Not applicable for all patients.
• Positions patient upright and may elevate legs—not counted in points

Provides Evidence Based Rationale for Interventions
• Suburban activation policy and research demonstrating RRT activation criteria

• O2/Applies NRBM at 15 lpm—see EBP recommendations. Short term only, requires ABG and senior clinician review. Not applicable for all patients.
• Some may want to elevate legs; however, this is split by evidence, and not counted in points

Evaluates Evidence Based Interventions and Outcomes
• Evaluate interventions and outcomes related to safety during debriefing
• Evaluate interventions and outcomes and clinical decision-making during debriefing
• Evaluate interventions and outcomes related to teamwork and collaboration during debriefing

Reflects on Clinical Experience
• Identify what went right
• Identify what could be done differently and why
• Identify how care of the patient would continue in future timeline

Delegates Appropriately
• Primary RN (assessments and care planning) delegates appropriately to the Secondary RN (tasks such as safety, meds, runner)

PATIENT SAFETY Discussion Worksheet
<table>
<thead>
<tr>
<th>Uses Patient Identifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify patient with two identifiers</td>
</tr>
<tr>
<td>• Verify patient identity with health record</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Utilizes Standard Practices and Precautions Including Hand Washing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Perform hand hygiene when enters/exits the patient’s room</td>
</tr>
<tr>
<td>• Wears gloves if performs invasive procedures-fingerstick/furosemide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Administers Medications Safely</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Double checks IV fluid and rate to orders ideally on entry to room</td>
</tr>
<tr>
<td>• Holds Furosemide &amp; Metoprolol for Hypotension</td>
</tr>
<tr>
<td>• Pauses IVF for Respiratory Status and I&amp;O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manages Technology and Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reviews CRM alarm limits and volumes- Assures it is set up properly and accurate</td>
</tr>
<tr>
<td>• Checks emergency equipment on entry to room</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performs Procedures Correctly</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Auscultate lungs bilaterally anteriorly upper &amp; lower lobes and posteriorly upper &amp; lower lobes &amp; laterally both sides with diaphragm under gown (minimum of eight locations)</td>
</tr>
<tr>
<td>• Measure respiratory rate for one full minute at least once</td>
</tr>
<tr>
<td>• Provides call bell to patient if both RNs leave room</td>
</tr>
<tr>
<td>• Stays with patient once change in condition occurs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reflects on Potential Hazards and Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Describe potential outcomes in this scenario for failure to recognize cues and respond appropriately</td>
</tr>
</tbody>
</table>
Appendix O

Instructor Debriefing Guide

Deteriorating Patient Debriefing Questions & Guide
Instructor Guide Based on the Debriefing for Meaningful Learning Method (DML)

**Reflection-in-Action**= focuses on critical decision-making points which emphasize assimilation and accommodation (take in and understand information or ideas)

**Reflection-on-Action**= focuses on what one would do differently next time (accommodation)

**Reflection-beyond-Action**= focuses on anticipation and preparing for the next clinical experience

Instructions:

1. **Engage**- Have participants complete page 1 of the DML Worksheet for 3-5 minutes. This is a quick emotional dump of feelings & thoughts. Tell them you will not discuss this outright but that it typically comes up in the discussion. Then have observers script on the board under each bucket you have identified the green/red/blue they identified for each. (Whiteboard Buckets: patient relevant info in center of board/safety/nursing priorities/nursing assessment/nursing interventions/teamwork & collaboration & communication/potential complications or risks)

2. **Explore**- Ask questions found below-this allows participants to reflect on how they viewed scenario events, how opinions differ, where decisions were made. Create a concept map on the whiteboard as this is discussed and participants can follow along on page 3 of DML worksheets. One observer may stay at the board to write as the discussion unfolds so a good picture is left on board at the end.

3. **Explain**- Discuss nursing assessments, patient findings, nursing clinical decisions, nursing interventions and associated patient responses. Identify on concept map the relationships between assessments, patient findings, nursing clinical decisions, nursing interventions and associated patient responses. Challenge their assumptions, be curious about why they did what they did.

4. **Elaborate**- Use nursing process as a framework to integrate assessments and interventions with patient responses and outcomes.

5. **Evaluate**- Identify what went well (green on board), what did not go well (red on board) and what they would do differently next time and why (blue on board). At the end of the discussion, participants can complete the last worksheet in the DML packet. All green (practices you want to keep) goes under column 1, all red and blue (practices you want to improve upon) goes under column 2 and at the bottom is the extension question found below.

6. **Extend**- Ask what if questions at the end (see below) so that participants can extend their thinking beyond the scenario to different patient presentations and situations. For example, 3 other situations where you can use what you learned in this scenario.

Reference
Socratic Questions-This is a potential list but go where your participants need you to go! Clarify ideas, probe assumptions made by participants, etc. The goal is to reframe thinking. All questions focus on care of deteriorating patient & objectives. Remember, the best questions have no clear answers.

Set Clinical Context
1. What happened to your patient in this scenario? Or what do we know about this patient that is important?
2. What placed this patient at a higher risk of deterioration?

Nursing Assessment/Gathering Cues/Patient Findings
3. Were you able to conduct a complete and accurate nursing assessment on initial contact with the patient? Why or why not?
4. How about when the patient’s condition changed? Why or why not?
5. Were you able to prioritize your assessments appropriately? Why or why not? How?
6. Did you know how often to assess? How did you know this?
7. Which patient assessments met Suburban’s RRT activation criteria? Did you activate based on knowledge of these criteria or for another reason?

Analyzing/Prioritizing/Planning/Understanding Cues/Nursing Interventions with associated patient responses
8. Did you feel as though you understood what was happening with your patient in the moment? Why or why not?
9. Did you provide appropriately prioritized nursing interventions? Why or why not? How did you know what to do? What knowledge, skill or experience did you use in this experience?
10. What decisions did you make? Did personal values, assumptions, or beliefs influence your decisions?
11. How did the patient respond to your interventions? Were they evidence-based? How did you know they were?

Safety/Potential Risks
12. Were you able to maintain patient safety for the patient during this scenario? How?
13. What did you do well and what did you miss? How could what you missed impact the patient?

Teamwork/Collaboration/Communication
14. What went well? Why?
15. What could have gone better? Why? How?
16. Were you able to do a good ISBAR which appropriately communicated the patients situation and needs? Did it get you the response you hoped for?

Extend/Anticipate
17. What would happen next with this patient? (On RRT arrival?)
18. Can you predict what would happen to this patient had their change in condition not been recognized?

Final question
19. What is your biggest take-away or take-home message from this experience today that you will use in your future nursing practice?

Optional other questions to really probe participant thinking:
1. Questions which clarify:
   a. Why do you say that?
2. Questions to probe assumptions:
   a. What could we assume instead?
   b. How can you verify or disprove that assumption?
3. Questions that probe reasons and evidence:
   a. What would be an example?
   b. What in your assessment helped you to make that decision?
   c. How will supplemental oxygen help your patient?
   d. How do you know that?
   e. Why did you choose 2 liters of oxygen instead of 100%?
   f. How are – and – similar? How are they different?
   g. What are the strengths and weaknesses of?-?
   h. Why is this best?
   i. What is a counterargument for -?
4. Questions that probe implications and consequences:
   a. What generalizations can you make?
   b. What are the consequences of that assumption?
   c. How does – tie in with what we learned in class?
5. Questions about the question:
   a. What was the point of this question?
6. Why do you think I asked this question?

To safely probe thinking:
“I saw/heard/noticed that you did “x, y, z” and I thought (whatever your thought it- for example that may jeopardize patient safety for whatever reason) and I am wondering what you were thinking or feeling in that moment to make you make that decision?

DML Worksheets attached on next pages
DML Student Worksheet

1. What is the first thing that comes to mind about the clinical experience you just had?

2. What went right and why?

3. What would you do differently and why?

Framing: (What is the client's story?)

Focused Key Problem/diagnosis:

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Reflective Thinking

Thinking-in-Action

Thinking-on-Action

Thinking-beyond-Action
### Data Management Plan

Using a clinical simulation training to increase medical surgical new graduate registered nurse confidence and competence when caring for deteriorating patients: A quality improvement project

<table>
<thead>
<tr>
<th>Aim/Objective</th>
<th>Project Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim 1: Examine the underlying causes for a lack of NGRN recognition and response to deteriorating patients.</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>1.1 Collect baseline data through anonymous needs assessment questionnaires administered to NGRNs, RRT staff, unit administration/educators on the factors involved in a lack of NGRN recognition and response to deteriorating patients.</strong></td>
<td>Microsoft Forms Demographic &amp; Needs assessment questionnaires (more detail provided in rows with objective 1.2)</td>
</tr>
<tr>
<td><strong>1.2 Analyze quantitative and qualitative data collected</strong></td>
<td># of completions, age, educational background, and degree type.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Data Management Plan</strong></th>
<th><strong>Type</strong></th>
<th><strong>Source</strong></th>
<th><strong>Timeline</strong></th>
<th><strong>Analysis</strong></th>
<th><strong>Display</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim/Objective</strong></td>
<td><strong>Project Data</strong></td>
<td><strong>Timeline</strong></td>
<td><strong>Analysis</strong></td>
<td><strong>Display</strong></td>
<td></td>
</tr>
<tr>
<td><strong>1.1 Collect baseline data through anonymous needs assessment questionnaires administered to NGRNs, RRT staff, unit administration/educators on the factors involved in a lack of NGRN recognition and response to deteriorating patients.</strong></td>
<td>Microsoft Forms Demographic &amp; Needs assessment questionnaires (more detail provided in rows with objective 1.2)</td>
<td>Project Month One</td>
<td>Calculate responses</td>
<td>Bar graphs &amp; Demographic data in pie charts</td>
<td></td>
</tr>
<tr>
<td>Experience level and type, exposure to clinical simulation and type, self-described confidence level when caring for deteriorating patients, activities feel most confident with, areas where they feel the most challenged, who they see as resources, comfort level in contacting RRT</td>
<td>Clustered List of statements</td>
<td></td>
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<td>---</td>
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<td></td>
</tr>
<tr>
<td>RRT # of questionnaires completions, length of service on team, position on team, perspective on strengths and weaknesses of NGRN care of deteriorating patients</td>
<td>Quantitative &amp; Qualitative</td>
<td></td>
<td></td>
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<tr>
<td>Clustered List of statements</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>RRT</td>
<td>Project Month One</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculate responses</td>
<td>Bar graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educator &amp; Administrator Position level Perspective on current strengths/deficiencies of NGRN when caring for deteriorating patients</td>
<td>Quantitative &amp; Qualitative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clustered List of statements</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>NGRN Preceptors Educators Unit Managers &amp; Directors</td>
<td>Project Month One</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculate responses</td>
<td>Bar graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thematic Analysis</td>
<td>Clustered List of statements</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 An online preparatory educational module will be completed by all NGRNs prior to participation in the CST. (includes a pre-and-post knowledge test)</td>
<td>Quantitative</td>
<td>NGRNS &amp; Pilot test pre-licensure nursing student participants</td>
<td>Pre-Test on Day 1 of NGRN contact</td>
<td>Calculate responses for each question</td>
<td>Bar graphs</td>
</tr>
<tr>
<td>7 question pre-and-post knowledge education test</td>
<td></td>
<td></td>
<td>Post-Test prior to simulation scenario delivery occurring in Project Month Three</td>
<td>Calculate % improvement in scores pre-to-post</td>
<td></td>
</tr>
<tr>
<td># of completions</td>
<td></td>
<td></td>
<td>Measure # of completions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of NGRN knowledge improvements pre-to-post-test on care of deteriorating patients to determine if knowledge was</td>
<td></td>
<td></td>
<td>Calculate responses</td>
<td></td>
<td></td>
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</tbody>
</table>

Pre-licensure nursing students Pilot Test Pre-Questionnaire

Age, educational background, healthcare work experience & position, clinical simulation experience & type, confidence level with deteriorating patients, challenges, comfort in activation of RRT, perceptions on readiness for practice

Quantitative & Qualitative

Pre-licensure nursing students 2 months before graduation participating in pilot test

Project Month Three

Calculate responses

Thematic Analysis

Bar graphs

Clustered List of statements
2.2 Provide an opportunity for all NGRNs to participate in a deteriorating patient simulation scenario during the residency period.

<table>
<thead>
<tr>
<th>Aim 3: Evaluate the effectiveness of CST in improving NGRN self-confidence and clinical competence when caring for deteriorating patients by using the Student Satisfaction and Self-Confidence in Learning Instrument (SSSCLI) and the Creighton Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Evaluation Instrument (C-CEI). ACT</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td><strong>3.1</strong> Examine the findings to determine NGRN self-confidence and clinical competence in recognizing and responding to deteriorating patients.</td>
</tr>
<tr>
<td><strong>3.2</strong> Evaluate NGRN self-confidence before and after implementing CST as measured by the SSSCLI.</td>
</tr>
<tr>
<td><strong>3.3</strong> Evaluate NGRN clinical competence after each simulation session as measured by the C-CEI.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aim 4: Provide a sustainable plan to continue the CST in the NGRN residency program.</th>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>
### 4.1 Evaluate NGRN focus group feedback post CST using thematic analysis to measure the effectiveness of simulation in developing clinical judgment.

<table>
<thead>
<tr>
<th>Focus Group Questions</th>
<th>Qualitative</th>
<th>NGRNS</th>
<th>Project Month Four</th>
<th>Word Clouds &amp; Clustered List of statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “Did you feel this CST helped to improve the care of deteriorating patients? Why or why not?”</td>
<td></td>
<td></td>
<td>Identify recommendations and perspectives of NGRN participants on CST to determine if revisions/modification should be made to create a sustainable plan for future use</td>
<td></td>
</tr>
<tr>
<td>2. “What additional simulation scenarios would you like to participate in?”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. “What additional education or improvement initiatives are still required to enhance the recognition and response for deteriorating patients?”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. “What skills from this CST do you think you have transferred to your clinical practice?”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. “What suggestions do you have to improve this CST?”

| 4.2 A structured CST based on INACSL Standards of Best Practice will be in place for future use in the NGRN residency program. | Qualitative | NGRNS | Project Month Four | Analysis of focus group questions responses may inform redesign or modification of the CST for future use | Identified list of recommendations for potential modification of CST |
### Appendix Q

#### Participant Demographics

<table>
<thead>
<tr>
<th>Participants' Characteristics</th>
<th>Total Sample N=21 (n=17 NGRN, n=4 Pilot Students)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years (n,%)</td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>5 (23.8%)</td>
</tr>
<tr>
<td>26-35</td>
<td>12 (57.1%)</td>
</tr>
<tr>
<td>36-45</td>
<td>4 (19.0%)</td>
</tr>
<tr>
<td>Highest level of education (n,%)</td>
<td></td>
</tr>
<tr>
<td>Pre-Associate (Pilot Students)</td>
<td>4 (19.0%)</td>
</tr>
<tr>
<td>Associate</td>
<td>4 (19.0%)</td>
</tr>
<tr>
<td>BSN</td>
<td>7 (33.3%)</td>
</tr>
<tr>
<td>2nd BSN</td>
<td>3 (14.3%)</td>
</tr>
<tr>
<td>MSN</td>
<td>3 (14.3%)</td>
</tr>
<tr>
<td>Years of Healthcare Experience (n,%)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>5 (23.8%)</td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>5 (23.8%)</td>
</tr>
<tr>
<td>≥1 year</td>
<td>11 (52.4%)</td>
</tr>
<tr>
<td>Number of Prior Simulations Participated In (n,%)</td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td>3 (14.3%)</td>
</tr>
<tr>
<td>5-10</td>
<td>11 (52.4%)</td>
</tr>
<tr>
<td>&gt;10</td>
<td>7 (33.3%)</td>
</tr>
</tbody>
</table>
Appendix R

Measurement of NGRN Confidence in Ability to Care for Deteriorating Patients

New Graduate Registered Nurse: Confidence in Caring for Deteriorating Patients

- Not at all confident
- Somewhat Confident
- Fully Confident
- Unsure
Appendix S

Stakeholder Perceptions of NGRN Strengths and Weaknesses

Perceived Areas of Strength vs Weakness by Various Stakeholder Groups

% of Participants listing the given area as a strength/weakness

- Early Recognition of Deterioration
- Communication
- Rapid Response Activation
- RN Interventions While Awaiting Assistance

- New Grad Strength
- Pilot Students Strength
- Educator/Admin Strength
- Rapid Response Strength
- New Grad Weakness
- Pilot Students Weakness
- Educator/Admin Weakness
- Rapid Response Weakness
Appendix T

Knowledge Test Scores

![Bar chart showing Deteriorating Patient Knowledge Assessment: Performance Pre and Post Educational Intervention]

- **Pre Scores**: Average # Correct out of 7 possible
- **Post Scores**: Average # Correct out of 7 possible

**Mean**

**Standard Deviation**
Appendix U

NLN SSSCLI Satisfaction Scores

Pre vs Post Satisfaction Results
Appendix V

NLN SSSCLI Confidence Scores

Pre vs Post Self-Confidence Results

Level of Confidence (Low of 1 to high of 5)

- Pre-Survey Average
- Pre-Survey Standard Deviation
- Post-Survey Average
- Post-Survey Standard Deviation
Appendix W

Competence Scores for all Simulation Groups

<table>
<thead>
<tr>
<th>Group One</th>
<th>Group Two</th>
<th>Group Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score=11/21</td>
<td>Total Score=10/21</td>
<td>Total Score=10/21</td>
</tr>
<tr>
<td>52%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Assessment 0/2</td>
<td>Assessment 0/2</td>
<td>Assessment 0/2</td>
</tr>
<tr>
<td>Communication 3/4</td>
<td>Communication 2/4</td>
<td>Communication 2/4</td>
</tr>
<tr>
<td>Patient Safety 3/5</td>
<td>Patient Safety 3/5</td>
<td>Patient Safety 3/5</td>
</tr>
</tbody>
</table>
Appendix X

Summary of Competence Findings

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Communication</td>
<td>• Incomplete &amp; Inaccurate assessment</td>
</tr>
<tr>
<td>• Hand hygiene</td>
<td>• Choosing interventions based on evidence and</td>
</tr>
<tr>
<td>• All stayed with patient during emergency</td>
<td>complete assessments</td>
</tr>
<tr>
<td>• Subjective patient data</td>
<td>• Vital signs</td>
</tr>
<tr>
<td>• Recognized deterioration and eventually</td>
<td>• Patient Safety</td>
</tr>
<tr>
<td>activated RRT</td>
<td>• Difficulty analyzing cues/situational awareness</td>
</tr>
<tr>
<td>• Thoughtful reflection and self-analysis</td>
<td>• Clinical judgment</td>
</tr>
</tbody>
</table>