



Implications of simulation and real-life learning for novice emergency nurses in COVID-19

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Abstract

In recent decades, technological influences have propelled the advancement of nursing education, in both practical and theoretical andragogy. Simulation technology has become an integral component of many nursing programs and clinical practice settings. The introduction of simulation challenges current mentorship and practice-based real-life learning, alluding to the question: Is the use of simulation to educate nurses within the clinical environment a sufficient replacement for real-life learning? The recent severe acute respiratory syndrome coronavirus 2 disease (COVID-19) pandemic has caused emergency departments (EDs) to re-examine educational practices, potentially replacing real-life learning with simulation technology to support novice nurses as they care for acutely ill COVID-19 patients. Many experienced ED nurses have left the profession during the COVID-19 pandemic, and novice ED nurses with minimal ED experience have been hired in their places (Canadian Association of Emergency Physicians [CAEP], 2021). While their enthusiasm, skill, and knowledge are highly valued, novice ED nurses face many challenges in the complex ED environment, particularly in the rapidly changing COVID-19 pandemic. This article provides an overview of simulation learning and real-life learning and

how both of these models, along with their educational strategies, may be implemented by ED nurse educators to assist novice ED nurses transitioning to independent practice.

Keywords: simulation, real-life learning, novice nurse education, emergency department, COVID-19

Under routine practices, novice emergency department (ED) nurses face numerous challenges transitioning to clinical practice in a complex and dynamic clinical environment (Doherty, 2016; Garcia-Martin et al., 2021). Over the past several years, there has been an ongoing trend in Canadian EDs towards high patient volumes, staffing shortages, heavy workloads, and ED nurse moral distress and burnout—all of which affect the quality of patient and family care (Arnold, 2020; Canadian Association of Emergency Physicians, 2021). The recent severe acute respiratory syndrome coronavirus 2 disease (COVID-19) pandemic has now amplified these nursing issues, adding rapidly changing policies and procedures, personal protective equipment (PPE), fatigue, moral distress, and personal safety risk to an already challenging professional environment (Garcia-Martin et al., 2021). Nurses, physicians, and news outlets across Canada have voiced their concerns regarding the high rate of ED nurse attrition, especially during the COVID-19 pandemic (Canadian Association of Emergency Physicians, 2021; Grant, 2021; Varner, 2021). In Ontario, many novice ED nurses have been hired to fill the void, dropping the median age

of ED nursing staff by almost a decade compared to one year ago (Varner, 2021). The Canadian Association of Emergency Physicians (CAEP) recently identified that “while [the physicians] value and respect [novice nurse] training and enthusiasm, they cannot immediately replace the experience and wisdom of a seasoned ED nurse” (2021, p. 2), nor should they be expected to. The authors believe novice ED nurses are entitled to mentorship, support, and powerful educational experiences to develop their practice and facilitate their transition into this complex professional environment. In the current clinical climate, these supports are lacking. ED nurse educators face many challenges in attempting to support existing staff with continuously changing information and practice, and have limited additional time, funding, and resources to address the learning needs of these novice nurses.

Further to this, ED clinical practice surrounding airway management has shifted significantly out of necessity to protect staff from COVID-19 (Begley et al., 2020). Intubations are performed in isolation rooms with only essential staff present, thus mitigating the risk of exposure to the virus (Sullivan et al., 2020). Skills and practice surrounding airway management are challenging to learn as a novice ED nurse, and the COVID-19 context creates an additional barrier to the delivery of safe educational experiences for the learners. In light of these barriers, ED educators are left to consider how to support powerful and dynamic educational experiences while minimizing learner risk, now that they cannot teach exclusively in the accustomed foundational mentorship style. This question has caused EDs to re-examine educational practices, potentially replacing real-life learning with simulation technology to support novice nurses as they care for acutely ill COVID-19 patients. In this article, the authors will discuss the benefits and limitations of real-life learning and simulation, analyze the two andragogical approaches with specific consideration of the novice ED nurse and COVID-19 airway management, and propose recommendations for practical implementation in emergency nursing education.

Real-life learning in nursing education

After graduation, clinical registered nurses (RNs) continue to grow personally and professionally as they learn from real-life experience in the clinical environment. Papp et al. (2003) define the clinical environment as “encompass[ing] all that surrounds the student nurse, including the clinical settings, the equipment, the staff, the patients, the nurse mentor, and the nurse teacher” (p. 262). The clinical setting is a “powerful environment for learning” (Liljedahl, 2018, p. 272), one that is simultaneously complex and challenging, and critical to nursing education (Spence et al., 2019). This learning environment can be very difficult to control, but is highly valued by learners for the dualistic positive and negative learning opportunities they encounter (Papp et al., 2003). Over the past century, clinical education has grown and evolved alongside nursing practice. Particularly during COVID-19, the novelty and uncertainty of the pandemic caused rapid change to the real-life learning environment for novice and experienced nurses alike.

Benefits of real-life learning

Nurse educators currently foster clinical learning through models, such as the facilitator model and the preceptor model, which emphasize mentorship and role modeling. Such models are designed to enable learners to synthesize nursing knowledge in the context of hands-on patient and family care, thus strengthening learner capacity for problem-solving, life-long learning, and critical reflection (Spence et al., 2019). Sterner et al. (2019) argue “experience of acute situations and the integration of theory and practice are pivotal in acquiring skills to provide appropriate care” in the practice setting (p. 135). Through clinical experiences, learners witness tangible, real-life examples of patient and family care, apply theory to the clinical setting, and practice person-centred care to grow their empathy, respect, and relational skills (Spence et al., 2019; Weller-Newton & McCormack, 2020). Novice nurses with more clinical experience than their peers complete tasks more efficiently and skillfully, further internalize theoretical knowledge, have improved professional identity, and are overall more competent (Manoochehri et al., 2015). Where simulation lacks realism (Lasater, 2007), real-life clinical experiences provide novice nurses with the opportunity to see objective signs in practice that are difficult to teach or simulate, such as pallor, mottling, diaphoresis, and discomfort. Lyneham et al. (2008) also describe the development of intuition or a patient who ‘looks sick’ as a critical aspect of real-life learning for the ED nurse.

Modern clinical teaching models that draw heavily on mentorship and role modeling (Ironsides et al., 2014) expose learners to the realities of healthcare delivery, where learners have the opportunity to reflect on the environment, the quality of care, patient and family perspectives, and their own values and beliefs (Liljedahl, 2018; Sterner et al., 2019). These real-life experiences also allow for social workplace interactions, which are shown to have a positive correlation with learning and knowledge development (Kolb, 2014; Liljedahl, 2018). As novice nurses gain knowledge from peers, mentors, and role models, they hone their decision making and thought processes (Kolb, 2014; Liljedahl, 2018). For example, novice nurses who experienced quality team support and peer feedback when learning to properly don and doff PPE were less anxious, more confident, and felt a greater sense of being included as a member of the team (Garcia-Martin et al., 2021, Nelson et al., 2021). As the nursing profession advances, learners are becoming active stakeholders in their clinical learning (Liljedahl, 2018). Learners highly value experiences within the clinical environment that foster independence and growth (Liljedahl, 2018); such experiences have potential to influence their career path significantly (Weller-Newton & McCormack, 2020).

Challenges of real-life learning

Ironsides et al. (2014) suggest real-life learning opportunities can be random, difficult to predict, and time- or resource-intensive. Novice nurses may experience varying degrees of inclusion; at times, learners are used as staff members when they should be supernumerary or limited to an observational role rather than being included and supported (Ironsides et al., 2014; Weller-Newton & McCormack, 2020). The clinical environment is

highly relational; therefore, learners need to succeed at relationships to gain access to knowledge (Liljedahl, 2018). This can be challenging, even more so when preceptors, mentors, or facilitators are demeaning, intimidating, or ill-prepared for teaching (Weller-Newton & McCormack, 2020). Additionally, the main emphasis and measure of progression in clinical education remains on task completion (Ironsides et al., 2014; Liljedahl, 2018; Weller-Newton & McCormack, 2020). Task completion is foundational to nursing care but when so heavily focused on, can overshadow more complex aspects of nursing, such as quality improvement, clinical reasoning, delegation, and the complexity and gravity of patient situations (Ironsides et al., 2014). Simulation learning offers an adjunct to clinical teaching that mitigates some of these key challenges of real-life learning, specifically lack of control over the types and quality of clinical learning experiences.

Simulation learning in nursing education

Simulation technology has long been used in the healthcare setting as an effective and valuable modality for training healthcare professionals (Harder, 2009). The International Nursing Association for Clinical Simulation and Learning [INACSL] Standards Committee (2016) defines simulation as “an educational strategy in which a particular set of conditions are created or replicated to resemble authentic situations that are possible in real life” (p. 44). The realistic environment of simulation allows healthcare professionals to practice new, complex, or uncommon procedures in a safe and controlled environment before applying the skill or knowledge to patient care (Dieckmann et al., 2020). Over the last 70 years, healthcare simulation has evolved and transformed. Early examples of simulation include learners practicing injections on oranges (Harder, 2009) and presently, high fidelity simulations (HFS) are being utilized to prepare large numbers of healthcare professionals to safely and effectively improve hospitals’ responses to the current COVID-19 global pandemic (Dieckmann et al., 2020).

Benefits of simulation learning

Simulation learning is not only used in undergraduate nursing education but is used to support novice ED nurses as they transition to a different workplace (Sterner et al., 2019). Yang (2020) suggests simulation transforms critical thinking and clinical judgment capabilities of novice ED nurses. The repetitive practice in simulation increases cognitive abilities in the clinical setting, as the experience is similar to situations that have already taken place (Alshammari et al., 2018). During the simulation experience, novice ED nurses have the opportunity to make errors, and learn from these errors, by visually seeing the impact on the patient in a safe environment (McDougall, 2015). Debrief sessions provide an additional opportunity for further exploration of learning experiences and possible errors; the novice ED nurse develops a deeper reflection of the experience and greater understanding of the potential impact to patient care (McDougall, 2015).

The COVID-19 pandemic has brought attention to the significant stress and anxiety felt by novice ED nurses, identifying

the need for ongoing learning opportunities to further support clinical judgment and enhance confidence as novice ED nurses transition into an intense and dynamic practice environment (Garcia-Martin et al., 2021). The use of HFS in the clinical setting through the global pandemic has proven to be a supportive strategy in rapidly increasing the readiness and confidence of healthcare professionals when caring for COVID-19 patients (Alshammari et al., 2018). In-situ simulation offers a unique opportunity for novice ED nurses to experience high-risk situations in a supportive and calm environment.

Challenges of simulation learning

The success of in-situ simulation depends greatly on the engagement of the facilitator; the intended learning is at risk if facilitation lacks motivation, skill, enthusiasm, and authenticity (Bowen-Withington et al., 2020). Akhtar-Danesh et al. (2009) highlight challenges and barriers among nurse educators when implementing and applying in-situ simulation technology, such as the lack of time to learn and the number of resources required to maintain knowledge around simulation technology. Nurse educators may experience feelings of anxiety and fear around the in-situ simulation scenario being too advanced for the novice ED nurse, jeopardizing the intended learning outcomes (Akhtar-Danesh et al., 2009).

For the learner, relying on the facilitator for patient communication or interactive responses has the potential to interrupt the natural flow of assessing patients, reducing the realism of the simulation (Lasater, 2007). The absence of visual cues such as a smile or grimace from the manikin, the absence of paleness, diaphoresis, mottling, and seizure activity is another challenge. Additionally, HFS can be intimidating and overwhelming for some learners. If a pre-brief session is not included, learners can experience feelings of frustration when HFS technology fails or interrupts the simulation experience (Lasater, 2007).

As discussed above, both simulation and real-life learning have their respective benefits and challenges; both instructional strategies effectively support the growth and development of novice ED nurses, particularly in the COVID-19 context.

Discussion: Novice nurses in the ED and COVID-19 education

The COVID-19 pandemic is a global health problem that has greatly affected many healthcare professionals, causing fear and anxiety, and significantly changing clinical practice for nurses (Begley et al., 2020). Specifically, new considerations for airway management and aerosol-generating procedures in the ED have led to new intubation guidelines and principles to keep healthcare workers safe and reduce risk of viral transmission (Begley et al., 2020; Chan, 2020; Sullivan et al., 2020). ED nurses require specialized knowledge, skills, and training in ventilation, intubation support, and formulation of emergency response plans to adequately care for patients with suspected or confirmed COVID-19 (Tan et al., 2020).

For novice ED nurses, navigating a complex working environment while trying to apply new skills, new knowledge, and deliver high quality clinical care can be extremely stressful,

overwhelming, and emotionally exhausting (Hussein et al., 2017). Sterner et al. (2019) argues the complexity of most acute care patients is too advanced for novice ED nurses; their underdeveloped skill set and gaps in knowledge can lead to negative learning experiences and patient safety concerns (Hussein et al., 2017). The acuity of a patient presenting with respiratory distress requires quick action by the nurse to identify life-threatening symptoms and intervene in a timely manner. For novice ED nurses, this situation under normal circumstances can be overwhelming and frightening; the fear of contracting COVID-19 adds an additional layer of stress, anxiety, and clinical complexity (Tan et al., 2020). Thus, ED nurse educators across Canada have become concerned with how to efficiently and adequately train and support novice nurses in these new practices and role transitions, exploring learning strategies such as simulation and real-life learning.

The use of real-life learning in COVID-19 education

Real-life learning is a well-established method to build skill, knowledge, and confidence in the authentic clinical environment. One successful real-life learning strategy for novice nurses in the ED is active participation—not exclusion—in acute care situations, with experienced staff for support (Sterner et al., 2019). Novice nurses should also have role models, such as ED nurse educators or experienced ED nurses, to demonstrate skills, verbalize clinical reasoning, demonstrate professional behaviours such as empathy and respect, and help novice nurses bridge the gap between education and practice (Doherty, 2016; Matchim & Kongsuwan, 2015). Particularly during the COVID-19 pandemic, the visible presence of nursing leadership on the unit provides novice nurses with a resource and support in the midst of uncertainty and change (Nelson et al., 2021). Learning from role models in the clinical environment is also one way for novice nurses to discover their “craft knowledge... the combination of a nurse’s practice observations, knowledge, skill, and clinical experience to provide patient centered care” (Doherty, 2016, p. 159). Additionally, debriefing of real-life experiences is especially important during COVID-19, with its resultant risk for additional psychological distress, fear, and anxiety (Tan et al., 2020). Novice nurses should be provided with the opportunity to debrief their experiences with senior staff, discuss their questions and feelings, and be given tools, methods, and resources to help process their emotions (Doherty, 2016; Tan et al., 2020) and address knowledge gaps (Mok et al., 2020).

Due to the new and evolving COVID-19 pandemic, locating scholarly research and data regarding current real-life learning benefits and implications has presented a challenge. Most literature emphasizes the importance of simulation for healthcare professionals learning new procedures and processes to combat COVID-19 (Dieckmann et al., 2020; Sullivan et al., 2020). Mok et al. (2020) note that it is “critically important to balance learning objectives with learner safety” (p. 619), limiting any unnecessary learner exposure to COVID-19. Thus, creativity is required to support novice nurses in having real-life learning experience with COVID-19. Suggestions include having novice nurses be part of the airway management team

as a supportive role, or remaining outside the room, actively watching the resuscitation and discussing management and roles with a senior staff member or educator (Mok et al.). Mok et al. stress that while a busy ED and risk of viral exposure can make direct observation and participation in COVID-19 cases challenging for learners, it remains important to improve skills, identify deficiencies, and obtain targeted feedback. Having hands-on experience troubleshooting ventilators is especially important for first-line nurses during COVID-19, incorporating both theoretical knowledge and opportunity for practice (Tan et al., 2020).

The use of simulation in the era of COVID-19 education

The use of simulation in the ED is vital to navigate clinical practice changes due to COVID-19. Dieckmann et al. (2020) state “simulation can rapidly facilitate hospital preparation and education of large numbers of healthcare professionals and students of various backgrounds” (p. 1). According to Sullivan et al. (2020), a meta-analysis of several studies emphasised the importance of simulation in healthcare education; the use of simulation significantly improves clinical knowledge and “a significant positive relationship between simulation performance and clinical performance exists” (p. 35). McDougall (2015) indicates practice through simulation is an ideal educational strategy for adult learners as simulation allows for a unique learner-centered experience building off existing knowledge and meets professional needs in an authentic, relevant, and practical way. Simulation provides novice ED nurses an opportunity to experience diverse clinical situations, make mistakes without causing harm, and integrate clinical skills, communication, and critical thinking in a controlled and supportive environment (Kapucu, 2017). Sullivan et al. (2020) suggest repetitive practice in a simulation setting will support novice nurses in real-life situations to feel prepared to implement a practical systematic process for safe airway management procedures in the treatment of potential or confirmed COVID-19-positive patients.

Recommendations for COVID-19 education of novice ED nurses

Both real-life learning and simulation have indisputable benefits for novice ED nurses navigating the complex clinical environment during the COVID-19 pandemic. Relying solely on real-life learning experience for new airway management procedures in the ED is extremely risky, as high cognitive load, stress, and adrenalin can increase chances of errors, greatly affecting patient safety and the health and safety of novice nurses (Dieckmann et al., 2020). Simulations can be used in combination with clinical experiences to enhance nursing skills and abilities in critical thinking, decision making, problem solving, communication, teamwork, and professional development (Kapucu, 2017). Simulation and real-life learning are complementary, contributing to increased confidence and competency in the novice ED nurse (Tan et al., 2020; Weeks et al., 2019). We, therefore, recommend that ED nurse educators consider the importance of real-life learning in the ED, while emphasizing the use of

simulation as an effective strategy in preparing novice ED nurses and their interprofessional teams for care of COVID-19 patients. Specifically, ED nurse educators should consider the following recommendations:

- Real-life learning strategies, including observation, role modeling, and debriefing build confidence and competence in novice ED nurses working with COVID-19 patients. These strategies create opportunities for learners to witness expert clinical care in action, ask questions of their role models and educators, practice these skills with targeted feedback, and learn from their experiences (Doherty, 2016; Mok et al., 2020).
- Simulation learning strategies, such as relevant case scenarios, use of HFS, debrief sessions, and the creation of safe learning environments, build knowledge, nursing skill, and confidence for novice ED nurses caring for COVID-19 patients. These strategies create opportunities for novice ED nurses to learn and improve clinical performance, communication and teamwork skills, timely decision making, and critical thinking in a controlled environment (Dieckmann et al., 2020; Sullivan et al., 2020).
- In a real-life situation, novice ED nurses can draw on knowledge and experience gained from previous COVID-19 airway management simulations, reducing overall fear and anxiety and increasing confidence and competence (Kapucu, 2017). As an educator, it is essential to incorporate both simulation learning and real-life learning to create a holistic and dynamic educational experience for novice ED nurses.

Conclusion

The ongoing exodus of experienced ED nurses, amplified by the COVID-19 pandemic, has threatened education, support, and mentorship for novice ED nurses. In health crises and emergencies, nurse competency directly impacts success rates and quality of patient care (Miao et al., 2018, as cited in Tan et al., 2020, p. 1388). Therefore, developing and implementing comprehensive educational programs and experiences for transitioning novice ED nurses is crucial to competent ED patient care. Both simulation and real-life learning are excellent ways to build confidence and competence for novice ED nurse learners. As nursing education trends toward the use of learner-centred andragogical approaches, many theories suggest facilitating a variety of teaching modalities to create educational opportunities for all types of learners (Garrett, 2020). Preferably, teaching through implementation of a blended education model, including both real-life and simulation activities, would facilitate comprehensive learning programs for students and novice nurses. While this article discusses two particular instructional styles, further investigation is required to effectively evaluate and implement a program that appropriately balances the two. ED nurse educators are called to think critically and creatively about the complex instructional environment and support novice ED nurse learning by designing unique models of clinical education to concurrently address the learning needs of novice ED nurses and improve retention in emergency nursing.

Clinical Implications

- Novice nurses need better support in transitioning to independent practice in the ED, especially given the recent exodus of experienced ED nurses and resulting influx of novice ED nurses.
- Simulation learning cannot entirely replace real-life learning, yet is a vital strategy to develop knowledge and skills in a safe and controlled environment, while building confidence and competence for the novice ED nurse.
- Real-life learning strategies that emphasize mentorship create opportunities for learners to witness expert clinical care in action, ask questions of their role models and educators, practice these skills with targeted feedback, and learn from their experiences.
- COVID-19 airway management education requires careful planning to mitigate learner risk, while maximizing knowledge translation and application.
- ED nurse educators should implement and/or advocate for the integration of a blended model of simulation learning and real-life experiences to create a holistic and dynamic educational experience for novice ED nurses.

About the authors

Carrie Meagher is a registered nurse with 16 years of nursing experience. She is currently the Program Head for the British Columbia Institute of Technology Emergency Nursing Specialty Program. Carrie has a particular interest and passion for emergency medicine and critical care nursing, with all her nursing experience at Vancouver General Hospital. Carrie brings her emergency nursing expertise to support the growth and development of emergency nurses across British Columbia, Canada, and internationally. Carrie completed her Master's in Nursing Education from the University of Victoria in 2021. Outside of nursing, Carrie enjoys spending time with her husband and two young boys exploring British Columbia.

Jenna McComb obtained her Bachelor of Science in Nursing from Douglas College in 2017. She began her career at Langley Memorial Hospital, where she completed an Advanced Certificate in Emergency Nursing from British Columbia Institute of Technology in 2018. Shortly following certificate completion, Jenna began working at Royal Columbian Hospital. She has filled numerous different nursing roles including bedside emergency and trauma, intensive care, acute stroke nurse, cardiac catheterization laboratory, and clinical resource nurse positions. Additionally, she has participated in nursing research and mentorship roles within the Royal Columbian Hospital emergency department. More recently, Jenna completed her Master's in Nursing Education from the University of Victoria in 2021. When she's not in the hospital, Jenna can be found exploring the British Columbian wilderness with her husband, drinking a good quality latte, or baking and decorating cakes.

Jennifer Burkhart obtained her Bachelor of Science in Nursing from the University of Alberta in 2013 (a collaborative program with Grande Prairie Regional College) and has since worked in emergency departments all over Canada, from rural northern outposts to tertiary trauma centers. Jenn now resides in Ottawa, where she works as a bedside emergency nurse and is completing her

Master's of Nursing Education at the University of Victoria. She is passionate about improving miscarriage management in the ED, incorporating simulation into clinical education, and supporting new nurses. In her rare spare time, Jenn loves simplifying her home and life, baking good bread, and exploring the outdoors with her husband and kids.

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