Featured Article

P Stands for Pivot: Pivoting Face-to-Face Practicum to Virtual Simulation during the Pandemic

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Abstract Virtual simulation has been widely used to temporarily replace face-to-face clinical practicum experiences in nursing education in response to the global COVID-19 pandemic. While more traditional clinical settings were prioritized and made available only to senior students, the use of virtual simulation provided an opportunity to safely pivot from the usual placement to a comparable practical learning modality to maintain clinical competence during unprecedented public health restrictions and mitigation strategies. Like many others across the globe, nursing students in a Canadian university continued their nursing education predominantly using virtual simulation for an entire academic year to avoid catastrophic delays in entering the workforce and to ultimately protect the health service delivery needs throughout the oncoming waves of the pandemic. The purpose of the paper is to describe guiding principles established in a School of Nursing as a means to responsibly and ethically adopt a replacement of traditional clinical practicum experiences with virtual simulation. The principles for incorporating virtual simulation included the need to achieve and maintain a high level of quality of learning experiences, a fluid delivery articulated in phases, and a financial commitment by the learning institution. As the global pandemic may see a fourth wave, the use of virtual simulation will continue to present a major change for clinical practicum and establishing principles for the use of virtual simulation has demonstrated to be an integral part of safe pandemic response and post-pandemic recovery.

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Key Points

- Documented, innovative curricular changes that allow students to progress safely through their practical experiences in order to avoid delays in graduation and support health service delivery needs during the COVID-19 pandemic.
- Nursing education continues to be considered an essential and integral part of the healthcare system and the protection of nursing students has been equally important to consider in the new normal of the COVID-19 pandemic.
- While nursing educators ensure the future capacity of the nursing workforce during the COVID-19 pandemic, the protection of vulnerable populations must be carefully considered throughout the various points in each of the programs' semesters.
- Recruitment of trained simulation facilitators presented a challenge over the pandemic response as each clinical practicum required experienced individuals to provide guidance, support, and structure for the virtual simulation in the form of a prebriefing, an enactment of the virtual simulation, and a debriefing phase.

In the spring of 2020, virtual simulation was used to replace face-to-face clinical practicum experiences in nursing education as an immediate response to the COVID-19 pandemic and the sudden restrictions of clinical placement (Society for Simulation in Healthcare & International Nursing Association of Clinical Simulation and Learning [INACSL], 2020). In Ontario, traditional clinical settings were prioritized and made available primarily to graduating students. The Canadian Association of Schools of Nursing (CASN) presented a timely position statement stating that innovative curricular change implemented by schools of nursing needed to be documented. To avoid potential delays in entering the workforce in a post-pandemic world and to also support health service delivery needs during the global pandemic, learners continued their progression through practicum education. However, the strategies needed to be documented to inform the next steps of the pandemic response. Virtual simulation was used to safely pivot from the usual placement while ensuring a practical solution that could maintain a commitment to fostering clinical competence, self-confidence, reflexivity, teamwork, and collaboration for students during an unprecedented global pandemic (CASN, 2020). The purpose of the paper is to disseminate the process of adopting guiding principles at a faculty level in the early days of the pandemic as an important element of responsible planning, to describe the use of virtual simulation as a substantive replacement of clinical experiences, and to subsequently revisit the principles to reassess experiential education in a post-pandemic return to traditional clinical setting.

Educating nurses is core to delivering safe patient-centred care; making the need to continuously educate nursing students into the future of an unknown timeframe equally important to consider during the transition into the virtual environment in the early days of the pandemic. While nursing educators ensured the future capacity of the nursing workforce during the COVID-19 pandemic, the protection of nursing students and the capacity of hospitals and other clinical agencies to provide adequate personal protective equipment (PPE) were considered in determining the way forward. Additionally, there was acknowledgement of the impact of learners from all levels of study returning to already pressured clinical practicum sites and the risk that their attendance in the clinical setting could pose in their provision of care to vulnerable populations (CASN, 2020). In addition to a shortage in PPE, there was a serious concern that asymptomatic nursing students could potentially spread the virus and that alternate means of experiential learning would be more appropriate (CASN, 2020). In response, nursing educators began quickly to re-imagine practice education strategies and their impact which encompassed not just in the early days of the pandemic but also for the following surge in cases for months to come. One key element could be agreed upon: strategies for educating nurses safely needed to remain intact. Universities and colleges across the province, the country, and the world saw a quick pivot to moving to virtual delivery of nursing education. While the use of virtual simulation was already a part of nursing education, such a significant and global shift to virtual simulation required a high degree of quality educational materials and efficacy of teaching to achieve learning outcomes that were traditionally met in a face-to-face clinical environment. Using virtual simulation in principles would require a phased approach of asynchonous, synchronous online learning and the use of virtual simulation and high-fidelity simulation as a replaement of clinical hours until a safe return to the clinical setting could occur (Fig. 1).

Establishing Guiding Principles as a Starting Point

The guiding principles proposed in the early days of the pandemic served to document adopted practices during the pandemic and to become a reference point for a return to normal. The main principles for using virtual simulation included a commitment to high level of quality, a plan with enough fluidity to be delivered in multiple phases,
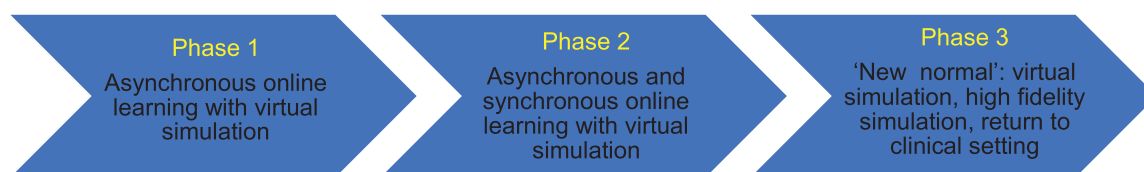
Figure 1 Using virtual simulation through fluid phases.

and full financial support by the learning institution for virtual simulation activities in the School of Nursing. During the first phase of the pandemic, learners experienced asynchronous virtual experiences to meet clinical outcomes and were not required to virtually meet their instructor or their classmates at a specific time. In the second phase, learners moved into synchronous virtual simulation experiences to meet clinical practicum competencies and learning outcomes. In the third phase, learners combined synchronous and asynchronous virtual simulation experiences with blended face-to-face clinical placements to meet clinical learning objectives and to apply new knowledge acquired in virtual simulation. The third phase brought learners closer to a new normal and represented a return to the clinical setting. Seeing that innovation and flexibility were required during the pandemic, the clinical placement settings were managed with fluidity through the phases during the semesters as the situation evolved. For instance, students were often asked to make arrangements necessary to move into the third phase (i.e, travel, accommodations, PPE, self-isolation) but the Ontario public health restrictions and stay-at-home orders kept them in the second phase. The notion was that they would be prepared to pivot back and forth in a structured but fluid manner. Like many other health education programs, learners were also coming back to campus from hot spots experiencing the highest rate of infection of the epidemiological curve potentially needing to self-isolate before moving to the next phase of the plan. Therefore, placement in each level of study needed to be identified as being in one phase or another depending on the context. As for the re-placement of hours, much time was spent at the faculty level negotiating the acceptable logging of hours in virtual simulation and what the ratio would represent for licensure. There is a paucity of research available on the ratio of clinical that can be effectively replaced by simulation. Sullivan et al. (2019) described emerging evidence for the ratio of clinical to simulation hours as 2:1 and based on the limited evidence available, a similar 2:1 replacement of clinical hours was adopted to simulation hours during the pandemic (Grotta et al., 2020; Sullivan et al., 2019). In principle, committing to high quality virtual simulation experience constituted that one hour of simulation (including synchronous and asynchronous activities) would provide a comparable experience equivalent to two hours in a clinical practice setting in a more traditional face-to-face

experience. In establishing these guiding principles, there was a need to acknowledge that a gap in the literature regarding effective replacement and that such a practice would be adopted in light of the COVID-19 pandemic. A considerable task awaits nursing educators using clinical simulation in the post-pandemic and full return to face-to-face placements for nursing students. The experience of establishing principles for the use of virtual simulation may have invited an open dialogue in the modifications and re-imagining of educational practices and the use of virtual simulation with partnering agencies, hospitals, and placement settings.

Faculty Development Plan

It is important to note faculty development as one of the key requirements to a successful simulation program and the need for professional development was identified early as a critical need (Bryant et al., 2020). Recruiting skilled simulation facilitators presented a challenge over the pandemic response as each clinical practicum required experienced individuals to provide guidance, support, and structure for the simulation-based experience in the form of prebriefing, activation of the virtual simulation, and debrief (INACSL, 2016). Clinical instructors in the School of Nursing were taking part in virtual simulation for the first time and as facilitators were required to have synchronous online presence with groups of students in virtual simulation. Faculty development with the selected products was made available, and faculty with simulation expertise offered to mentor or be available to assist with co-debriefing the scenarios until new faculty felt confident. A module developed by Canadian nurse educators through the Canadian Alliance of Nurse Educators Using Simulation© (CAN-Sim©) was also used for debriefing education. Clinical instructors more familiar with face-to-face supervision of practicum experiences pivoted to using technology and unfamiliar online platforms for a year. Several months into the pandemic with uncertainty for the future, there continues to be a need for faculty development and additional educational opportunities made available in-house. Ongoing faculty education was offered throughout the semesters and a more formal mentorship program may also be required to sustain the use of virtual simulation in the next stages of the pandemic.

Implementing Virtual Simulation

During the 2020-2021 academic year, a return to traditional clinical practicum was anticipated making the fluidity of the phases necessary; however, only graduating students returned to a face-to-face clinical setting due to ongoing public health restrictions. Seeing a major principle of the implementation plan included financial support, an institutional commitment to using virtual simulation as part of the pandemic response required the purchase of the licensing options for learners at every level of study if a cost was involved. In addition, open educational resources (OER) which included simulation resources were accessed via links provided to the School of Nursing and these were used in the pivot. Nursing educators across the nation willingly shared various OER. A Canadian network of simulation experts made the sharing of ideas and products a smooth process through CASN and CAN-Sim©. Information sessions and webinars were made available in all provinces and territories in Canada to present, describe, and support the use of virtual simulation.

In fulfilling outlined principle of maintaining quality learning experiences, various modalities of virtual simulation were used in the nursing programs to engage students with virtual patients and avatars. Each practicum experience began with a virtual orientation session prior to the start of a weekly virtual simulation schedule whereby instructions and preparatory information were given to the participants. As a starting point, Blackboard Learning System© was the platform used to provide facilitated synchronous prebrief and debrief in small groups of six to eight students. Clinical placement was replaced with virtual, interactive, experiential clinical environment where learners were required to make decisions to move forward in the game and then participate in a planned synchronous debrief. The virtual simulation games (VSG) commonly used for presimulation preparation were used widely as the main simulation experience (Verkuyl et al., 2017). The fully online synchronous experience would involve a virtual prebrief, a quiz, a module, and a virtual debrief for each clinical component in the nursing programs. The VSG provided an immersive way for students to 'play' against themselves to develop knowledge, and to prepare for the simulation experience. The purpose of the virtual prebriefing was also to establish and set ground rules for a psychologically safe environment for participants in virtual simulation and to address the ongoing student concern of effective group work and positive team work in a completely new setting for faculty and students (Edmondson, 1999; Turner & Harder, 2018). The debrief needed to be a reflective process immediately following the virtual simulation led by a skilled facilitator. According to INACSL (2016), an effective simulation debrief heightens the learner's self-awareness and self-efficacy for future situations. The participants were encouraged to use reflective thinking and feedback was provided regarding the participants' performance in the virtual simulation activities and various aspects of the completed simulation were openly discussed in a virtual meeting.

The School of Nursing implemented a variety of virtual simulation platforms and students used a number of virtual simulation products to cover a range of clinical experiences; from community health nursing, medical-surgical nursing, mental health nursing, perinatal and paediatric nursing care. In these practicum experiences, virtual simulation was used to augment and to replace simulation that would have normally occurred face-to-face.

To begin, a unique experience in the nursing program is a first semester shadowing experience where the student is assigned observational clinical hours with a nurse in the community with the goal of contributing to student socialization to the profession. During the pandemic, the experience was pivoted to virtual meetings with the nursing mentors in practice and there were no scheduled face-to-face observational experiences. The nursing students' virtual shadowing experience required them to reach out to their assigned nurse mentor from the community to better understand the role of the nurse and to be exposed to a day in the life of a nurse during the pandemic. A virtual shadowing seminar was facilitated by a clinical instructor once per week to debrief the shadowing experience and to provide insight into the current healthcare context.

As for the more advanced nursing students, clinical learning activities involved the use of purchased products to facilitate learning opportunities that apply knowledge and skills related to various populations. Using vSim© for instance, the learners were asked to complete ten modules within each suite (i.e., ten medical/surgical, ten maternal child and ten mental health) in clinical practicum and in a number of the classroom-based theory courses. Additionally, learners maximized on the OER to access various VSG developed by Canadian nurse educators through CAN-Sim©. Many of the CAN-Sim© VSG also aligned effectively with in-person peer-reviewed simulation scenarios familiar to the learners (Luctkar-Flude et al., 2021). The CAN-Sim© VSG also offered relevant COVID-19 pandemic topics and provided an open platform for learners to discuss global policies and current events relating to the pandemic in the student debrief (Tyerman et al., 2021). Finally, a group of senior level students in a community health nursing clinical course conducted remote community health projects in community health nursing with real world projects that would be implemented in service agencies through virtual interactions. The Virtual Healthcare Experience© developed by a collaboration between a university and two colleges in Canada was also used seeing that the virtual hospital offered an interactive, experiential opportunity to build clinical reasoning by applying knowledge and practicing skills in a clinical practice setting. Throughout the experience learners were provided with immediate feedback of selecting an appropriate re-

sponse to a filmed clip to improve clinical decision-making skills.

Planning for Sustainability: Role Clarification for the Use of Virtual Simulation Strategies

The use of virtual simulation and managing practice education during the pandemic required careful planning and collaboration between nursing faculty, clinical instructors, and preceptors. Open communication of practicum education issues between faculty members was an essential and integral part of providing a quality experience for learners during unprecedented times. Clinical faculty, employed by the educational institution needed to provide integrative learning that can be transferred from a classroom to a clinical environment (Registered Nurses' Association of Ontario [RNAO], 2016). The faculty overseeing a part of coordination of practicum was responsible to collaborate and communicate with the entire program's team to ensure a quality experience for learners as both navigated through the virtual aspects of practice education during the public health restrictions. Now more than ever, there was an increased need for nursing leadership, collaboration, and collegiality to effectively use virtual simulation and to create a quality virtual learning environment in practice education across programs as face-to-face clinical practicum experiences became limited and unavailable for learners. Nursing instructors responsible for providing professional development, guidance, direction, and support to learners during a clinical experience continued their employment and their affiliation with the School of Nursing during the pandemic. Hence, the role of the clinical instructor shifted to an unfamiliar place of increased virtual simulation, much of which was delivered synchronously in a specific time in the learner's timetable. Preceptors, the practice experts, or specialists who offer practical nursing experience and training continued to perform in the role of mentor and teacher in their relationship with the learner on the unit (RNAO, 2016). Some learners in preceptorship, the final practicum, were sent home in the early days of the pandemic to return later with the same preceptor while others finished their experience with a new preceptor. While outbreaks within the senior level graduating students were experienced, the phases of the virtual simulation plan were helpful to respond to public health self-isolation and quarantine protocols.

Continued Mentorship during the Global Pandemic

During the pandemic, the requirement to pivot to a safe and effective class delivery was a top priority. However, the need to support faculty who may be unfamiliar with new online teaching modalities was a key component for success in delivering high-quality nursing education. Those with appropriate experience can, and should continue to engage in opportunities to mentor their peers. Mentorship needs to be on-going once the public health restrictions have been lifted, to complement the new and returning clinical personnel. Ongoing mentorship to ensure that development and support of highly qualified, and adequately prepared, simulation faculty should be a priority in nursing education. The effectiveness of the strategies used to support and mentor clinical faculty using virtual simulation also represents an opportunity for further research.

Conclusion

Using virtual simulation as a main strategy to meet learning objectives in clinical practicum required high quality, carefully planned, and effectively delivered learning experiences for nursing students. In the end, the activities selected needed to be appropriately chosen and connected to the learning outcomes. The principles established in the School of Nursing also included a call for financial support to subsidize the procurement of virtual simulation products, to remunerate faculty time towards careful selection and sharing of OER, and to provide opportunities for faculty development for effective use of virtual simulation. The unknown duration of the COVID-19 pandemic has made adhering to the pre-established guiding principles and implementing of concrete strategies crucial to the continued adoption of virtual simulation as a major clinical education model. There has also been a need to follow-up with learners in each level of study in the nursing program to ensure a safe return to relational practice and to offer support to incorporate some of the lessons the COVID-19 pandemic has taught both educators and learners. Evaluation of the entire experience may provide insight into pandemic preparedness from an educational perspective and to the discussion around education of healthcare professionals in a new normal. Establishing the use of virtual simulation integral to a safe pandemic response has also created a need for research to explore the student experience in virtual simulation.

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of Nursing as a means to responsibly and ethically adopt a replacement of traditional clinical practicum experiences with virtual simulation.

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