

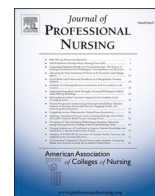


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An innovative approach for graduate nursing student achievement of leadership, quality, and safety competencies[☆]

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ABSTRACT

The COVID-19 pandemic abruptly disrupted nursing education, forcing schools of nursing to move from in-person to online classes while clinical sites suspended rotations. These changes jeopardized graduate nursing degree completion for Registered Nurses (RNs) at a time when they were urgently needed to practice. The aim of this initiative was to develop proficiency of Master of Science in Nursing (MSN) leadership competencies in the absence of in-person clinical experiences and ensure timely program completion. To meet this aim, an interactive virtual clinical experience was rapidly designed. A team of expert faculty integrated a blend of perspectives from academia and practice to develop an unfolding case study across the health care continuum based on the real-world trajectory of the pandemic. This innovative interactive virtual clinical resulted in achievement of the aim. The faculty closely monitored progressive development of student proficiency in leadership, quality, and safety competencies as the teams effectively navigated the rigorous demands of the healthcare system within a complex scenario. Students reported satisfaction with the interactive clinical experience and gained increased confidence in leadership, quality, and safety competencies.

The COVID-19 pandemic abruptly disrupted nursing education. Nursing schools were forced to rapidly pivot from campus-based, in-person education to virtual learning platforms. For safety, and to preserve limited protective resources, clinical sites and schools suddenly discontinued traditional in-person clinical experiences. These changes impacted the students and faculty alike and increased the risk of delayed graduation during a time of critical need for nurses within the healthcare system.

Background

Nursing leadership is essential during times of rapid change. A strong association between competent nursing leadership and system quality and safety has been shown in scholarly literature by Adams (2018) and Akbiyik et al. (2020). The COVID-19 pandemic challenged nursing leadership to provide high quality and safe care delivery within an ever-changing health care system and exhausted workforce. Registered

Nurses (RNs) equipped with well-developed competencies in leadership, quality, and safety continue to be urgently needed. *The Future of Nursing: Leading Change, Advancing Health* (Institute of Medicine, 2011) and *The Future of Nursing 2020–2030: Charting a Path to Achieve Health Equity* (National Academy of Sciences, Engineering, and Medicine, 2021) emphasized that all nurses should be competent leaders to ensure rapid adaptation to changing situations and community needs.

The American Organization for Nursing Leadership (AONL), the American Academy of Ambulatory Care Nursing (AAACN), and the Association for Leadership Science in Nursing (ALSN) are long-standing professional nursing organizations concentrating on the development of competent nursing leaders. Each organization has clearly outlined leadership, quality and safety competencies required of nurses across care settings (AAACN, 2017; ALSN, 2022; AONL, 2015). As a strong and respected resource for graduate nursing curricular design, the American Association of Colleges of Nursing (AACN) provides degree competencies important for nursing education (AACN, 2021). According to the

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AACN, competencies are observable and measurable behaviors demonstrated multiple times across a program of study (AACN, 2021).

The ability to lead teams and drive evidence-based changes facilitates cycles of quality improvement and promotes high quality patient outcomes in healthcare organizations. Masters-prepared RNs who experience a well-developed program of study are educated, competent leaders who can successfully manage health care systems (Heinen et al., 2019). Clinical experiences are an integral component of MSN programs. Guided by the competencies outlined in the AACN's (2011) *The Essentials of Master's Education in Nursing* and in alignment with the competencies identified by the specific professional nursing organizations for specialty certification (AACN, 2017; AONL, 2015), MSN students were traditionally mentored by nursing leaders within a healthcare setting where abundant clinical opportunities helped cultivate progressive development of required competencies. As the pandemic overtook the healthcare system, many MSN students lost access to onsite clinical experiences during their last semester of the MSN program.

Purpose

The COVID-19 pandemic disrupted traditional methods of competency development for RNs earning an MSN degree. Graduate student nurses completing their MSN at the College of Graduate Nursing at Western University of Health Sciences, a private, not for profit institution in Pomona, California, were removed from their clinical sites due to concerns over student safety, personal protective equipment shortages, and the need to prevent transmission of a highly infectious novel virus. At the same time, faculty and clinical practice partners recognized the growing need for more MSN prepared nurses during this critical period of the pandemic. The college was challenged to rapidly identify effective strategies to engage students outside of a traditional educational setting to complete development of MSN leadership, quality, and safety competencies. Hence, the purpose of this initiative was to design and implement an interactive virtual clinical experience that promoted proficiency in these competencies in the absence of in-person clinical experiences and ensured on-time program completion.

Education without compromise during the pandemic

The development of nursing leaders who could rapidly adapt to the shifting health care landscape and devise innovative solutions was of utmost importance during this time. The college of nursing has a history of designing and implementing innovative learning alternatives and is dedicated to on-time program completion to support healthcare needs during the pandemic. To facilitate timely completion of graduate nursing degrees for practicing RNs, while promoting continued leadership competency development, evidence-based virtual strategies were explored for small groups of MSN students to demonstrate collaboration, leadership, quality, and safety competencies.

Connecting theory and practice is a difficult yet essential endeavor to ensure graduate students are prepared to apply their knowledge in practice (Benner et al., 2010). Case studies based on real-life situations promote active learning to assist students in their understanding of complex health situations, while facilitating greater understanding of interrelated processes (Benner et al., 2010; Porter-Wenzlaff, 2013). Unfolding case studies engage students across time, providing multiple opportunities of knowledge translation into practice and helping students put the pieces together, enhancing competency development (Benner et al., 2010; Herron et al., 2019; Porter-Wenzlaff, 2013). The unfolding pandemic aligned well for utilizing this method of instruction. The faculty team designed five process improvement and change management scenarios within an innovative unfolding COVID-19 case study as part of an interactive virtual clinical group project.

The interactive virtual clinical was progressively designed to support competency development without compromising learning experiences and outcomes. Using adult learning principles and guided by program

outcomes (College of Graduate Nursing, 2022), the virtual clinical was constructed to elicit active participation in a realistic setting while promoting critical thinking and system decision-making skills. The realistic setting provided a framework from which the clinical faculty could provide valuable guidance and direction for the students based upon real-life experiences and practical applications to nursing practice to help bridge the theory to practice gap (Benner et al., 2010; Porter-Wenzlaff, 2013).

Methods

Interactive virtual clinical development

The dean of the college was incredibly supportive of faculty utilizing creative and innovative evidence-based educational practices to develop expected MSN competencies and to promote on-time program completion during the pandemic. Within a four-week period, the faculty identified expected virtual clinical outcomes that were aligned with the MSN program outcomes and designed a 5-module unfolding case study, with the support of two administrative team members. The case study activities were designed to facilitate development of expected leadership, quality, and safety competencies that would meet the needs of complex healthcare systems. The case scenarios reflected the unfolding of the current real-world COVID-19 pandemic and its impact on the healthcare system from the perspective of nurse leaders. The modules were titled: (1) An Unknown Life-Threatening Crisis (2) Covid-19: Protecting Healthcare Workers and the Community (3) System Changes to Prevent Transmission (4) Creating Alternatives to Care and Surge Preparation, and (5) Re-Opening Health Care. Each scenario spanned two weeks.

The framework to support leadership competency development was based upon the TeamSTEPPS model (AHRQ, 2019) and the Institute for Healthcare Improvement (IHI) Open School Online Course (IHI, 2022). Students explored the concepts of TeamSTEPPS, an evidenced based model and toolkit to improve teamwork and communication among healthcare professionals (AHRQ, 2019), during their Interprofessional Education courses in their first year of study. Additionally, students completed the IHI Basic Certificate in Quality and Safety during their final year (IHI, 2022). With these basic competencies as a foundation, the students would be expected to work in teams to address each scenario from the perspective of a nurse leader and use a Plan-Do-Study-Act (PDSA) template to develop an evidence-based approach to address the situation. Each team was assigned to a hypothetical unit and expected to design an approach to the situation from the perspective of a nurse leader within that specific setting.

Each unfolding case study was presented through a Situation, Background, Assessment, Recommendation (SBAR) (Appendix A) as a standardized evidence-based communication technique (AHRQ, 2019). Expectations for the student teams, including the assigned deliverables (Appendixes B and C), were clearly defined for each module. Each module required the team to consider the work that needed to be done, consider roles and responsibilities of team members as nurse leaders within the context of the assigned unit/service line, develop a communication plan, and engage in a PDSA cycle to address the system problems presented in each module. Leadership roles within the team were rotated on a regular basis. Rotation of leadership roles and the repeated use of SBAR and PDSA within the five unfolding scenarios kept student groups engaged in cycles of change that led to proficiency in leadership, quality, and safety competencies (Benner et al., 2010; Porter-Wenzlaff, 2013).

The MSN-clinical courses within this college are not graded. Students receive unit credit upon successful completion of required clinical hours, expected clinical activities, and competency development for their specific programs. Faculty monitor student clinical progress across time through regular review of student electronic clinical logs and clinical preceptor evaluations. Student logs capture identified clinical activities, student time, and student reflections. Preceptors complete electronic

student evaluations at regular intervals throughout the clinical experience. Students receive one unit of credit for every 45 h completed. Clinical unit requirements ranged from 5 to 9 units based on the program.

Implementation

The thirty-two MSN students who participated were familiar with hybrid education (in-person and online) and the college's learning management system (LMS). The didactic portion of the MSN-programs were already delivered in a hybrid format. With assistance from two administrative support team members, each scenario was developed as a module. The virtual clinical modules were then uploaded on the college LMS, which provided the web-based infrastructure for the project.

Each clinical faculty was responsible for one two-week module. Each module began with a dramatic faculty recorded video clip providing an urgent charge for the two-week period. The SBAR, guidelines, instructions, resources, and timelines for deliverables were included in the recorded presentation. Written guidelines were also provided to the students. The interactive virtual clinical was introduced and implemented at the beginning of the final semester allowing students to acquire 80–90 clinical hours, approximately two clinical units.

Students were divided into teams of three to five members. Each team was assigned to a hypothetical nursing unit or service line within a health care system. The assigned settings included: Emergency Department, Intensive Care Unit, Step Down/Definitive Observation Unit, Employee Health Unit, Urgent Care, Clinic and Ambulatory Centers. Student teams scheduled synchronous virtual group meetings totaling 4 h each week using pre-assigned video teleconferencing links. The context and activities of the unfolding case study mirrored real-life events occurring within the COVID-19 pandemic (Appendixes A and B). Each phase of the unfolding case study created a unique group experience for the students to synthesize their own real-world experiences, combine available evidence, and integrate the experiences of other students within the group to make critical leadership decisions.

Student group meetings

With every scenario, all student teams were directed to operationalize a response to the COVID-19 pandemic from the perspective of their assigned unit or nursing service line within their selected specialty (Appendixes A and C). Working together, the students in each group discussed the challenges presented in the module. The group, under the guidance of the team lead, determined the actions to fulfill the challenges presented, decided who would complete each identified task, and developed a communication plan. The group focused on meeting the operational needs while maintaining the safety of the patients and staff within their respective hypothetical settings. Additional individual student work to support development of team deliverables accounted for the remaining clinical hours. This included but was not limited to literature reviews, exploration of clinical guidelines and regulatory requirements, and best practices in other settings. Synchronous virtual meetings were recorded and uploaded to the LMS for faculty to review teamwork and team dynamics.

Student roles and expectations

Specific roles within each team included recorder, member, and leader. Students' roles were each rotated with each new scenario, allowing each student to enhance their team competencies. The recorder was expected to take meeting minutes and send the document within 24 h to the group to get approval prior to submitting it to the LMS grade center for faculty review. Each member of the student group was expected to actively participate in the group discussions and decisions, and to collaborate in the development of a plan using a PDSA template. All group and individual recommendations, plans, and decisions were evidence-based and included references.

Each student rotated through the role of team leader to guide the

group through one scenario session throughout the span of the project. The team leader was expected to develop the meeting agenda, engage all team members, facilitate meetings to prioritize decisions and actions, hold group members accountable, and participate in a team leader meeting with the clinical faculty every 1–2 weeks. Team leaders met with clinical faculty for mentoring and formative feedback.

Role of clinical faculty

Due to the loss of clinical sites and clinical site preceptors, the clinical faculty role expanded to include the responsibility of being the clinical preceptor who monitored the groups' progress during the student leader meetings. The clinical faculty met regularly with the team leaders and served as mentors, guiding the team leader as they navigated their role and responsibilities. During the meeting between the team leaders and the clinical faculty, the students discussed the current group status, shared project successes, and addressed any challenges.

The clinical faculty assessed individual and group learning outcomes, observed competency development, promoted clinical reflection, facilitated debriefing, and provided feedback to the students. The faculty guided the MSN student team leaders to utilize evidence-based practices in group clinical decisions and helped them navigate group dynamics, including teamwork, collaboration, conflict management, delegation, and accountability. The team leaders were then expected to communicate feedback, latest information, and ideas gathered from the meeting with the clinical faculty to their team members for consideration as the plan and decisions were further refined. The faculty facilitated reflection on practice during rapidly changing circumstances to promote continued growth in clinical leadership competencies, while guiding application of theoretical knowledge in the simulated practice environment which could then be translated in the hypothetical health care setting.

Documentation

Group recordings and documents were submitted through the LMS for faculty review. Each team submitted a communication plan, meeting agenda, meeting minutes with recording link, the completed PDSA with references, and any other documents related to their assigned unit or service line at the end of each two-week scenario session. Faculty provided formative feedback to promote continued development of competencies.

An electronic clinical documentation program was used to track individual student activities. Each student documented their virtual clinical activities, competencies in progress or achieved, key learnings, goals, clinical experience reflections, and time logs throughout the duration of the virtual clinical group project. Clinical experience reflections were required to facilitate student assimilation of knowledge and experience into their professional growth as practicing nurses.

Evaluation of students

This post-licensure graduate course was a part of a four-semester series and was not tied to a specific didactic course. The MSN clinical course was a credit/no credit course, no letter grades were given. The clinical course was designed to allow students to integrate and apply knowledge and experiences to develop and enhance expected MSN clinical competencies. Students completed clinical hours and logged experiences while receiving mentoring and direction from a clinical instructor and a preceptor or mentor. MSN students specializing in leadership or ambulatory care nursing earned credit and clinical units when they successfully completed the course requirements.

Successful completion of this virtual clinical required demonstration of competencies in leadership, quality, and safety. The learning outcomes and competency development of each student were evaluated every one to two weeks through faculty review of group communication plans, roles and responsibilities chart, final PDSA with references and supporting documents, as well as individual clinical logs. Observation of

the students during the recorded interactive sessions allowed faculty to evaluate the effectiveness of team leadership and team dynamics.

Faculty evaluated students using the college's standardized clinical evaluation tool which included a student self-assessment. The standardized clinical evaluation tool covered eight categories that aligned with program outcomes: 1) Integration of knowledge, 2) organizational and system leadership, 3) quality improvement and safety, 4) translating and integrating scholarship into practice, 5) informatics and healthcare technologies, 6) health policy and advocacy, 7) interprofessional collaboration, and 8) clinical prevention and population health. Each student was also given the opportunity to evaluate their peers using the same tool. Students engaged in self and peer evaluation.

Outcomes

As the students began this virtual clinical, some expressed angst over their ability to lead a team within this experience. As the student groups continued to work together during the semester, the faculty noted progressive growth of individual and team leadership skills. Individually and collectively, the students collaboratively integrated knowledge and experiences into competency development. Students expressed their satisfaction with the experience and highlighted how the project increased confidence in their ability as a nurse leader. The students were able to apply their real-world experiences to the interactive virtual clinical group project and overcome conflicting practices to reach a consensus decision.

Students successfully demonstrated their ability to critically think through a complex scenario and apply best practices in alignment with the available evidence to meet the ever-changing demands within the healthcare system. Each PDSA and additional submitted documents highlighted the groups' decisions and ability to develop evidence-based interventions and implementation plans throughout the complex unfolding case study. The PDSA submissions documented thorough planning at multiple system levels across the continuum of care to sustain an environment capable of high quality and safe patient care delivery.

Through the active participation of each student as a team member and team leader, there was progressive development of the required competencies to meet program outcomes. The student documentation demonstrated their ability to prioritize, communicate, and overcome obstacles in the face during a crisis. Through this interactive virtual clinical, the students gained a perspective of the nurse leader role in the hypothetical clinical setting. The team leaders reported the intense responsibility of the situation and being challenged with rapid cycle decision-making to positively impact the healthcare setting. Despite initiating the project with uncertainty, the students discussed their professional growth, highlighting their ability to lead a team and hold colleagues accountable. As the students explored opportunities to meet the challenges of the pandemic in this virtual clinical setting, their perspectives shifted from clinical nurse to nurse leader, broadening the student's worldview. All participating students successfully completed the clinical requirements to graduate on time.

Discussion

As the pandemic overtook the healthcare system, many MSN students at the College of Graduate nursing lost access to onsite clinical experiences during their last semester of the MSN program. Innovative and creative solutions were needed to alleviate the disruption of in-person clinical rotations and prepare RNs to engage in the healthcare system as nurse leaders as they emerged from an MSN specialty program. Well-written unfolding case studies can facilitate development of desired nurse competencies (Herron et al., 2019). The development of an interactive virtual group project using unfolding case study mitigated the risk of delayed graduation while promoting competency development in future nurse leaders.

Case studies and simulation that closely align with the real-world help bridge the theory to practice gap (Benner et al., 2010). The design of the group project mirrored current health system challenges within the pandemic crisis, providing students with opportunities to advance their skills and engage in leadership, teamwork, collaboration, and evidence-based quality improvement activities. The MSN students were able to quickly adapt to the virtual simulated clinical experience since they were already familiar with online learning. In addition, the groups given the autonomy to establish their own schedule to meet the requirements of the interactive virtual clinical. The real-world based scenarios created the conditions for graduate level students to meet the desired outcomes: leadership, quality, and safety competency development.

The success of this virtual transformation demonstrated the value of a virtual clinical experience to promote leadership growth and development while enhancing student satisfaction. Multiple scenarios within the virtual interactive project enabled planned reinforcement to promote proficiency and facilitate group collaboration and engagement beyond classroom discussions (Benner et al., 2010; Porter-Wenzlaff, 2013). The rotation between team member and leader role also enabled the students to experience more than one perspective as they gained appreciation for the role and responsibilities of the nurse leader in the current health care system. Several students shared that they now have a greater respect for the responsibilities and complex decisions their current unit managers were making during the rapidly changing environment of the pandemic.

Strengths and limitations

The interactive virtual clinical experience was developed by an expert faculty team who provided a blend of perspectives from academia and practice. Additionally, strong administrative support contributed to the success of an interactive project in a virtual setting. This project was developed collaboratively and quickly, with design and implementation within a 4-week period due to the pandemic and the urgent need for timely completion of the program. The faculty were confident in their collective knowledge and abilities to move forward together with the development and implementation.

The design of this interactive virtual clinical project was feasible during a time when students could no longer attend in-person clinicals. The virtual nature of this project kept students safe by minimizing physical contact with others and helping to conserve valuable resources, including personal protective equipment of which there was an extreme shortage. This type of project offered flexible scheduling for group members to meet and accomplish each assignment. The success of this project as a virtual alternative can in part be attributed to the students' previous exposure to virtual learning since the program encompassed a hybrid approach. Additionally, the students were able to bring their workplace experiences to contribute to the group discussion and assignments as many were currently practicing RNs.

This virtual clinical project also had some limitations. Due to the immediacy of the unfolding need, it was not designed to be a research project. As the student groups were assigned, the group assignment did not consider student work schedule. Feedback from the students indicated that the mix of day shift and night shift students within a group created a challenge when trying to schedule weekly meetings at mutually acceptable times. Students also felt group size should be around 5–6 students due to workload. Another limitation was that some students were newly licensed and did not have robust practice experiences from which to draw upon for contribution to the group discussions and plans. Additionally, a few students had no experience as an RN in the clinical setting.

Conclusions

There are future opportunities for use of similar virtual unfolding

case scenarios to develop MSN competencies. Virtual competency development activities such as unfolding group case studies can provide ongoing experiences with a focus on specific competency development without compromising the quality of education. This interactive virtual clinical project can provide a robust template for future virtual clinical opportunities to continue developing future nurse leaders who are equipped to lead in complex and changing environments. In addition, there are opportunities to study long term effects of interactive virtual education for developing leadership, quality, and safety competencies.

In the absence of in-person clinicals, the clinical faculty designed an interactive virtual clinical experience that promoted proficiency in MSN student leadership competencies and supported on-time program completion.

Declaration of competing interest

None.

Appendix A. An Unknown Life-Threatening Crisis

SBAR for weeks 1 and 2

Situation	There is an outbreak of an unknown disease. We need to address this and prepare for a crisis as a leadership team across the healthcare system
Background	Currently, there is limited information about this new disease. It is suspected to be a multisystem disease which primarily affects the respiratory system. It is anticipated that a large volume of patients will require mechanical ventilation. Many patients are presenting with fevers. It is unclear at this time if this disease requires airborne or droplet precautions
Assessment	There are limited tests available currently and no identified treatment or vaccine. The WHO (World Health Organization), CDC (Centers for Disease Control), and other government agencies are continuing to work to develop treatments and vaccines as well as obtain additional testing supplies. More information will be shared as it comes forward
Recommendations	Team members will collaborate to develop evidence-based interventions for: <ol style="list-style-type: none"> 1. Safe screening strategies for this highly contagious disease. Specifically, development of a screening process and plan for probable patients. 2. Standardized procedures for individuals who are pending testing, consider vulnerable populations.

Appendix B. Unfolding case study scenarios and expected outcomes

Unfolding case study scenario	Learner outcomes
1 An Unknown Life-Threatening Crisis	<ol style="list-style-type: none"> 1. Develop evidence-based strategy for safe screening process for probable patients 2. Create standardized procedures for patients who are pending testing, consider vulnerable populations
2 COVID-19 Pandemic: Protecting Healthcare Workers and the Community	<ol style="list-style-type: none"> 1. Determine strategy for PPE usage at every level of care 2. Plan for staffing needs in preparation for staff exposure and/or surge of patients
3 System Changes to Prevent Transmission	<ol style="list-style-type: none"> 1. Develop plan and process for the cancelation of elective surgeries and non-emergent operational functions 2. Plan for how to best utilize staff in functions that have been canceled 3. Implement Remote Work guidelines
4 Creating Alternatives to Care and Surge Preparations	<ol style="list-style-type: none"> 1. Design a system to promote flexibility in workforce assignments to accommodate surges in patient care 2. Create Standardized procedures and protocols or algorithms for telehealth or telemedicine alternatives (where applicable) in lieu of direct patient encounters 3. Plan to address Community Health/Mental Health or burnout and high stress of workforce
5 Re-opening Health Care	<ol style="list-style-type: none"> 1. Process to re-open non-essential surgical services 2. Plan for community outreach, targeting patient populations of stroke, heart attack, and mental health

Appendix C. Team assignments

Focus based on assigned setting (emergency department, intensive care unit, etc.). Role of team leader rotated every two weeks. The team leader created an agenda, facilitated meetings, and held team members accountable. The team scribe/recorder took minutes and posted them on LMS with recorded meeting link.

List of team assignments submitted to LMS by end of each 2-week period.

1. Roles and responsibilities of each team member and relevant stakeholders.
2. Communication plan within the team as well as within the health care system.
3. Virtual meeting minutes with recorded meeting link.
4. PDSA and any applicable documents (i.e.-decision algorithm), including reference list.

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