



# CASE STUDY

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## VIRTUAL SIMULATION IN THE TIME OF COVID-19 WITH PACE UNIVERSITY

In mid-March 2020, the COVID-19 pandemic had become severe enough for the United States government to declare a national emergency. Shortly thereafter, schools across North America began shutting down campuses in order to keep students safe.

All face-to-face classes were cancelled. Schools and colleges of Nursing and Medicine were instructed to pull students from clinical placements. The situation was a conundrum - the pandemic revealed a desperate need for more healthcare staff at all levels, yet at the time we needed them most, upcoming clinicians would not be able to graduate without fulfilling their clinical requirements.

Faculty across the globe worked long hours and spent much of their time trying to find solutions. At the same time, the team at Oxford Medical Simulation (OMS) - a virtual reality healthcare simulation company - witnessed the chaos caused by last-minute clinical cancellations and identified a need to rapidly deliver simulation to fill the gap. Institutions were offered free, unlimited-access trials of the platform in order for students to continue practicing their clinical decision-making and critical thinking skills in a virtual clinical setting.

At Pace University's campuses in New York City and Westchester county, faculty saw an opportunity to continue delivering clinical practice opportunities to the students at the Lienhard School of Nursing in the College of Health Professions. Many of these students would be not only graduating and entering the workforce during a pandemic, but also going to work as newly graduated nurses in one of the hardest hit areas of the country.

Pace University's Millie Hepburn, PhD, RN, ACNS-BC, SCRNP led this effort. Here she explains how she approached the implementation of a virtual program, how it was received, and how Pace University received New York State Department of Education approved the virtual clinical curriculum to count as 50% of students' required clinical experience during this unforeseen time.

### Background

Prior to the cancellation of classes and clinicals, students in the Leinhard School of Nursing were already using Lippincott textbooks and Course Point Plus, which includes access to virtual simulations. While they had been using this program for a few years in conjunction with classroom and clinical learning, the new learning environment and loss of clinical experience meant that these virtual simulations were no longer going to be enough - students needed an experience that was akin to working with patients in a clinical setting. As Millie recounts:

"I was very worried about the quality of what we could do for students in the face of not being able to go into any of our clinical sites...our faculty and leadership team worked very closely to identify possible solutions."

### WHY THE OMS SYSTEM?

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Faculty chose the OMS VR system as it allows learners to practice managing nursing emergencies in a way that is realistic, on-demand, easy-to-access, and affordable.

To use the virtual scenarios, students use their personal computers to be transported into the virtual ward where they are met with an acutely unwell patient. Here they can practice as they would do in real life - taking a history, running investigations, administering medications and working with their team to successfully manage the patient.

At the end of the scenario each student is given detailed, specific feedback about how they performed in the scenario, and analytics to guide improvement.

"I spent several days just doing searches on the internet to see what companies had available and what that meant in terms of quality education. We were very concerned about the ability of a virtual platform to replace the on-ground clinical experience that requires students to clinically reason in the moment and make good decisions. How could I as a faculty member emulate a patient who's critically ill? How could I provide some type of parallel to what a student might see on a clinical unit? I researched many companies and found OMS, and found that it was unique, and I wanted to learn more."

**"THE WORLD NEEDED MORE NURSES AND I DIDN'T WANT TO DELAY PUTTING MORE NURSES OUT THERE THAT WERE ADEQUATELY TRAINED"**

"My clinical faculty in the courses I teach (such as medical surgical nursing and advanced care, such as stepdown and critical care) were working long shifts and often overtime in New York City area hospitals, caring for COVID-19 patients. They reached out to me, fatigued and in some situations had limited availability. I knew that this strain on healthcare would require more nurses and so I didn't want to delay putting more nurses into the workforce, but I wanted also to ensure that were adequately prepared for a world that would never be the same. So, there was the critical need to balance getting a product as a substitute, but it had better be a good one! In nursing, the quality of education can make a difference in the ability to save a person's life. And so, that's why we picked OMS."

## Curriculum Integration

As a nurse with previous experience in simulation, Millie was in a great position to facilitate and manage the work of implementing the OMS system at Pace. But she was just one person - the workload associated with making this implementation effective within the incredibly compressed timeframe was far too much to handle alone.

Fortunately, the faculty collaboration at Pace has been amazing, especially the support from leadership for various approvals, including the NYS Department of Education, and the teamwork with the Pace Faculty Simulation team to establish clinical faculty training sessions. Clinical faculty were accustomed to instructing students in various clinical settings, so virtual clinical days were a dramatic and sudden transition. Thankfully, the simulation team went to work immediately to support the clinical faculty and ensured successful implementation.

The faculty had a strong vision for the simulation experience. Students would continue to have clinical days, but instead of being on-ground clinical days, their experience would be virtually re-created. OMS would be the springboard for all clinical activities. How could this be accomplished?

First, it was important to integrate existing learning objectives for clinical rotations with the objectives of the virtual reality experience. The technology of the scenarios is the most realistic available, but each scenario is a "twenty minute snapshot" of a patient, whereas the clinical day is generally 7.5 hours.

The faculty identified that there were patient care activities that could be taught around the virtual experiences, such as medication administration safety, the development of detailed plans of care for patients, giving bedside handover report, etc. This necessitated the creation of student exercises that would be integrated with the simulation scenarios in the students' clinical day.

For on-ground clinical experiences, students are required to prepare in advance for the patients they would care for. Therefore, for the virtual clinical day, students also had to prepare. Prior to each clinical day, students would practice the virtual scenario individually, and a score of 80% was required. Scenarios were assigned in conjunction with the content being covered in classroom learning.

Using this strategy, the virtual patients' diagnostic presentations, such as Pulmonary Embolism, Sepsis, or Pneumothorax also became a subject of discussion for the students. Using additional online resources, such as the Agency for Health Care Research (AHRQ), students completed scenarios surrounding patient safety before their clinical day using the Patient Safety Network (PSNET).

The team at Pace created clinical discussion questions surrounding each of these scenarios for students to review and discuss with their clinical faculty as part of their clinical experience. Any relevant assessments to each scenario were also assigned topics for research, learning, and practice. For example, a stroke scenario would warrant exploration and practice of the NIH Stroke Scale; a scenario with a severely septic patient would prompt questions about tailored ACLS management if the patient was critically ill. Students were required to master key components of medication administration during this experience.

**"I RESEARCHED MANY COMPANIES, FOUND THAT OMS WAS UNIQUE, AND I WANTED TO LEARN MORE..."**

## Implementation In Practice

On clinical days, students met for 7.5 hours over the Zoom video conferencing platform. Students were expected to come prepared as they would in real life - with all of their required materials on hand.

Students would then proceed with synchronous clinical group work related to two different simulation scenarios. As Millie describes, "One student would start the scenario using screen sharing, and they'd run through the scenario together. Various students would give advice on what to do next so that it really emulated a team approach in the care of the patient."

After this was completed, the clinical group worked together to create a group nursing care plan for this patient and discuss why and how each piece of the care plan was relevant and tailored to this specific patient presentation. However, it is common knowledge that student group work may not be equally distributed among all group members. With this in mind, each student also had to individually create two unique patient care plans during the semester.

In addition to small group work, students also completed activities in pairs. For each scenario and patient presentation, pairs were assigned particular aspects of the topic to research and present back to the group, including five NCLEX-style questions related to that specific topic. As the Pace team described it, "...that kind of brings it full circle by the end of the day - the students have to present, they have to plan, and they have to take the concept to a deeper level of understanding. This offers a more comprehensive opportunity evaluate the skills and competencies of the students."

**"THIS OFFERS A MORE COMPREHENSIVE OPPORTUNITY EVALUATE THE SKILLS AND COMPETENCIES OF THE STUDENTS."**

## Faculty and Clinical Instructors

Bearing in mind that all of this was happening in New York during the height of the pandemic, the 16 Clinical Instructors were understandably overwhelmed as they were pulled in several different directions, including gaining new skills with regards to the new curriculum and virtual clinical setting.

From frontline needs to academic needs to friends and family falling ill, clinical instructors had many reasons for why they weren't able to lead clinical groups - sometimes having to cancel at the very last minute.

**"STUDENTS WOULD RUN THROUGH THE SCENARIO TOGETHER, GIVING ADVICE ON WHAT TO DO NEXT... IT REALLY EMULATED A TEAM APPROACH IN THE CARE OF THE PATIENT."**

Many were falling ill or tending to sick family members, or were simply burnt out from everything that was going on. This meant that Millie and the Simulation faculty often needed to jump in to cover where and when their support was needed. It was a monumental effort of teamwork and dedication to deliver this content, but it paid off.

What also aided the faculty and clinical instructors in their uptake of this new format were the detailed learning objectives related to each virtual simulation scenario provided by OMS. These served as a quick but comprehensive overview of what each scenario entailed and allowed faculty to develop talking points, pre-brief points and debrief questions without necessarily having to spend much time investigating options within the platform itself.

## State Board of Nursing's Acceptance of Virtual Clinical Hours

The virtual clinical experience at Pace University now accounts for 50% of the Lienhard School of Nursing students' clinical experience. This was approved by the New York State Department of Education as a novel learning opportunity for nursing students. Considering that the New York State Board of Nursing Licensing is among the most immutable in the nation - setting very high standards - securing this acceptance is an impressive feat.

To achieve this, the Faculty developed a comprehensive plan for each course they were teaching, along with accompanying hours and a ratio of virtual clinical hours to actual clinical hours to submit to the NYS Department of Education.

For each of these steps, a rationale was provided. The Associate Dean of Nursing led this initiative quickly and with and relentless determination. Thanks to her leadership, approval was granted expeditiously, and students were able to stay on track.

## Support from the OMS Team

Throughout the process of implementing OMS, the faculty had 24/7 access to an OMS Educational Specialist, Rebecca Wheeler. As Millie says:

"We knew we could count on her. When we needed her, she was there... she was right there every minute. We could not have done it without her, she has just been an amazing support."

**200 NURSING  
STUDENTS RAN 2,475  
VIRTUAL SCENARIOS.**

**THIS IS EQUAL TO  
559 HOURS OF IN-  
SCENARIO SIMULATION  
TIME**

## Reception

At first, there were students who felt as though they were being asked a lot and that faculty were "being intrusive of their time". To remedy this, faculty reminded students that they no longer needed to factor in commute time to their clinical days.

Laying down ground rules and explaining that virtual clinical was still indeed considered clinical practice helped set the vision straight.

Over time, the students engaged exactly as planned. Ultimately, due to the work of the Pace Faculty with the OMS platform, students were so pleased with their experience that they brought feedback forward to the leadership of the school of nursing in town hall meetings, led by the Associate Dean.

One stated that the virtual clinical experience was "super helpful and made them think about things they would not have thought of otherwise."

Furthermore, some students used these learning modules as the foundation for certification in skills and assessments such as Advanced Cardiac Life Support and NIH Stroke Scale certification. These students have now graduated with an upper hand - having a better knowledge base and improved grasp of clinical decision-making and critical thinking.

## Lessons Learned

If Millie were to give a few pieces of advice to those looking to implement this type of curriculum, her key takeaways would be:

**1. Plan ahead** (if you can). Start early - get your clinical faculty on board so they're aware of what's happening and can ask questions. Send out information about how to download and log into the system early, so that students aren't frantically figuring out technical issues at the last minute.

**2. Have a super-user** (or three). Identify someone at the university who knows the system, helps keep students and faculty on track and optimizes the implementation and integration of new technologies.

**3. Have a team approach.** As the above suggests, it is vital to work as a coherent team to implement any change. Particularly with new educational technology, having a close and supportive team is a huge asset.

## Conclusion

The educational challenges encountered by Pace University are similar to many institutions' experiences, as educators sought solutions to the challenges created by the COVID-19 crisis. The team at Pace were quick to respond to these challenges. Recognizing the agility inherent in the OMS platform, combined with the support and expertise provided by the OMS team, they were able to efficiently and effectively implement virtual simulation at scale.

This rapid deployment of quality clinical education allowed students to complete clinical rotations in a meaningful way, ultimately improving availability of newly trained clinicians and nurses to enter the healthcare system when they are needed most.

To get a sense of just how much the OMS platform was used during its initial deployment in the Leinhard School of Nursing, within 60 days, 200 nursing students had run 2,475 virtual simulation sessions, logging in a whopping 559 hours of in-scenario simulation time. The team are continuing to deliver virtual clinical days while social distancing continues, and are expanding use of the OMS system over the coming months, building on their innovative practices honed during the pandemic.

## ABOUT OMS

OMS delivers virtual reality training for doctors, nurses and other healthcare professionals. The focus is on clinical decision-making, crisis resource management, team interaction and patient engagement. This world-leading system allows healthcare professionals to learn through practice, without risking lives, to improve patient care. Please get in touch for further information.

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