INNOVATION & SIMULATION IN NURSING EDUCATION

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May 14, 2021

Northwell Health®

Objectives

1. Describe one health system's simulation education response to the pandemic
2. Describe pre-pandemic simulation modalities
3. Describe emerging modalities
4. Highly provocative assessment of the state of healthcare education!

I have to set the stage by describing the health system that I work for and where my team fits within the larger organization. Northwell is the largest private employer in New York. The system consists of 23 hospitals and over 800 outpatient facilities. 76,000 total employees, more that 17,000 nurses.

The Center for Learning & Innovation is the Northwell's corporate university. It exists for the purpose of making Northwell a learning organization, where learning and improvement are baked into the culture from the day you are hired. It was based on similar corporate universities at GE and Jet Blue and has always been instrumental in leadership development. In 2006, a few brave souls dipped their toes into the world of simulation as an enhancement to the nurse fellowship/residency programs that we were running at the time. Simulation at CLI is organized around 3 formats/modalities, each falling under a separate department rolling up to a unified leadership structure. Our facilities serve the health system and its professional schools, a medical school, and a school of nursing and physician assistant studies.

Mannequin or Human: patient simulator programs are handled by the Patient Safety Institute, a team of 11 full time simulationists. We have a 22 bed facility and HPS mannequins spanning the lifespan. We also have a large selection of part task trainers, like that pictured on the right. We try to layer the educational experience: foundational knowledge is provided by subject matter experts prior to arrival at our facility. That allows us to focus on critical thinking and team work: first with task trainers to focus on motor skills and then full body mannequins to integrate core knowledge and skills into scenarios that require problem solving, teamwork and communication. Every activity is accompanied by a reflective practice debriefing session.

For 2019—the last year we have reliable #s, we served 12,116 learners for a total of 61,724 learner hours. The pandemic decimated our 2020 programs.

That's me on the left with my colleague Riley, wearing our full dress uniforms!

Our Bioskills Education Center is a cadaver lab. It's uncommon for a corporate university to conduct cadaveric training, there's a small handful in the country; usually this is a luxury afforded only to a medical school. Our lab is independent of the aforementioned medical school and our primary focus is the workforce: surgical skills training for operative, emergency and critical care teams. This is literally a boutique service: our customers tell us what they want to train and we shop for the appropriate specimens using a variety of tissue banks. The goal here is to deliver an exact replica of the OR but for educational purposes where people can try new techniques, make mistakes without causing harm to our patients.
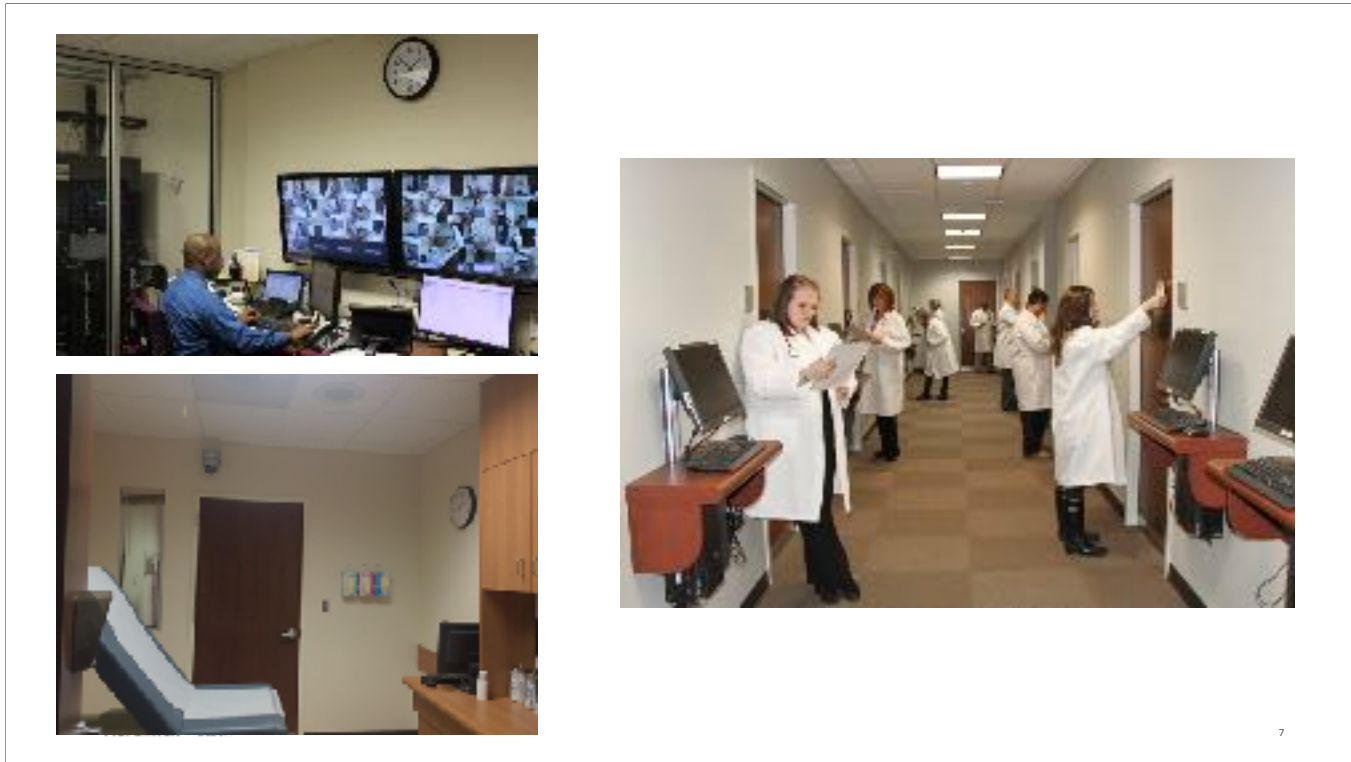
…and sometimes you need real human beings, for things like health assessments, interviewing skills, de-escalation training, breaking bad news…. where a mannequin is wholly inadequate … and for that we have a Clinical Skills Center with approximately 70 per diem employees who portray patients. Every case here is tightly scripted and rehearsed so each of the standardized patients in the 14 exams rooms are portraying the patient in the same manner. The folks in the white coats are reviewing door charts before entering the exam rooms to see their patients. Almost all of the activities in this department are tied to either formative or summative assessments of learners from the schools or residency programs.

Our strategic goal….remember the part about Learning Organization…is to create experiential learning opportunities for THE ENTIRE TEAM, to get practitioners out of their silos, thinking and communicating together. We've found the best way to accomplish that is through in situ simulation > brining the sim experience into the hospital units, where we can have access to the entire team in its native environment. On the left is a trauma resuscitation in one of our community hospital, the right is and electrophysiology lab in one of our tertiary hospitals.

Northwell has a helicopter. We get as close to in situ as possible! The mannequin is not cleared for use in-flight because it emits radio signals.
All of this, as fantastic as it is….and fantastically expensive, exists so teams can practice together. Every activity has learning objectives, a curriculum, designated faculty members and post session evaluations.
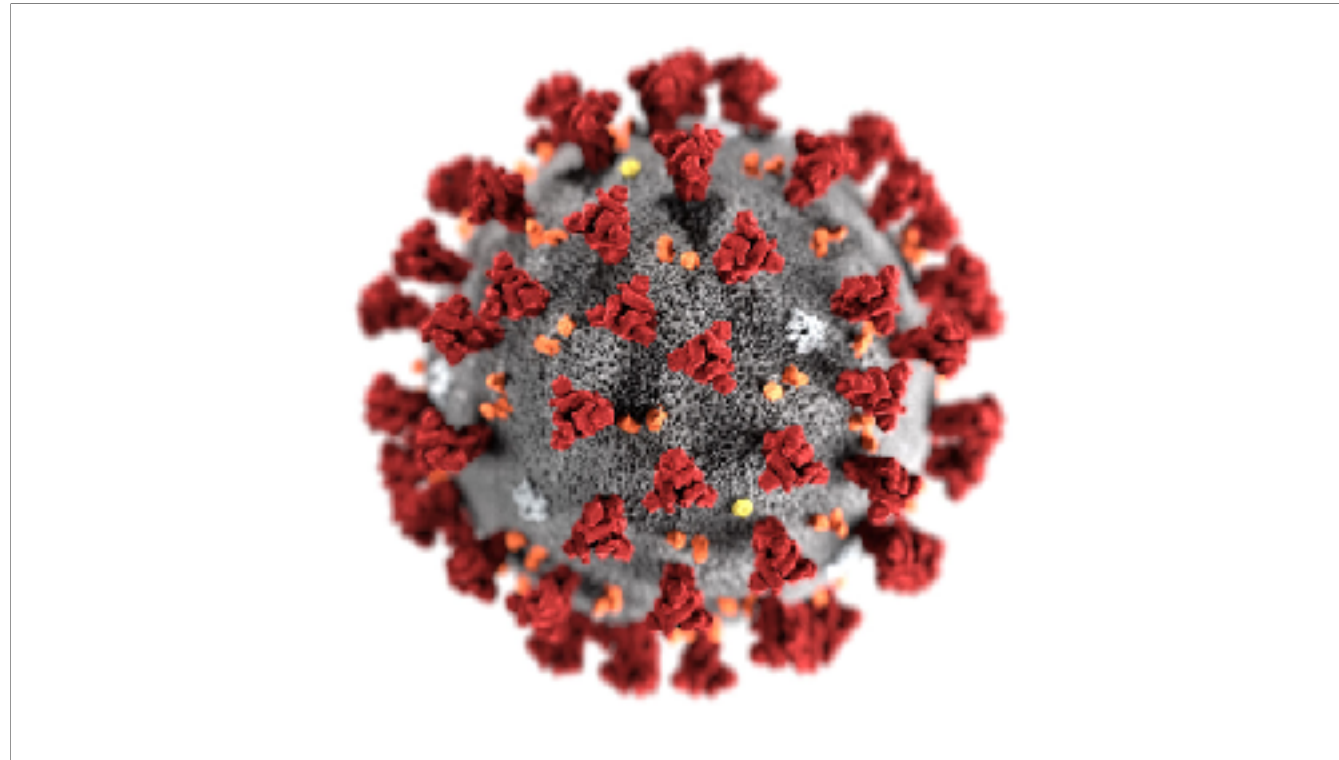
….and then this forced us to re-examine everything we were doing. We were on track to have a very busy 2020 with many new in situ programs queued up. We maintained normal operations for the first couple of weeks and then it became apparent that the customers couldn't be released from their duties in the hospitals as that first wave got worse. Our team was pretty quickly split up for re-deployment assignments that lasted for almost all of 2020. We kept a couple of key workforce onboarding programs going; for example, nursing orientation and some nurse fellowship programs but for the most part the facility became a ghost town.

After the initial shock of the pandemic set in and it became apparent this was going to be a marathon, not a sprint, we started to think about what would have to happen to resume "new normal." Some things were obvious: we'd follow the CDC recommendations etc. But other things weren't clear: there were people advocating for fully virtual education, virtual sim, avatar based sim/VR/AR a lot of ideas thrown around.

We did what any good educator does when faced with a challenge, we dug into the literature. It turns out there weren't many search results for the keywords "medical simulation during pandemic!"

There was a healthy amount of articles describing various forms of virtualizing simulation activities, or using serious gaming to augment some of the activities we normally did. But nothing about replacing your entire in-person platform with virtual or remote activities. Keep in mind that our academic partners—-the schools—have learners whose grade depend on completing certain assessment activities at the simulation center.

A couple of modalities percolated to the top of the list:

A goggle-based technology such as virtual reality or augmented reality. Various institutions had been piloting this or implementing it in small scale programs. We quickly ran into some issues that made its application questionable in a 77,000 person health system; namely scalability and how we get the technology out to the end users. The second hurdle was how to develop content. We'd been shopping this platform for 3-4 years before Covid and hadn't found products on point with the objectives we were trying to accomplish. There are good products out there, they are expensive and if you are going to make that level of capital investment it better meet your needs. Many of these companies don't do custom work.

A lot of people told us to "just put it on Zoom" and there were already quite a few scholarly works on how to do remote debriefing, but not so many on how to do the simulation part of the experience. Again the scalability issue and how to maintain engagement with dozens of participants on a zoom call. I bet many of you on the conference today have had the experience of trying to keep people awake and engaged during a virtual meeting: there's always someone shopping on Zappos!

Significantly, we could not identify any universal agreement as to how to most effectively virtualize the learning objectives we had.

This is a method that some simulation centers went with, and I call it the puppet show. We actually sat in on a session run like this as part of a regional consortium. I should say up-front that it worked for them, and that's terrific, but we had some concerns. Here's how it works:

4 sim center staff (the puppets in the picture) come to work at the sim center. They follow all the CDC guidelines, of course. The learners, represented by the 4 puppeteers, call into the simulation from home over Zoom or Teams. The tell the sim center puppets what to do in the room; for example, take a blood pressure and tell me what it is.

Start an Iv. And the sim center puppets carry out the orders and give feedback to the learners comfortably participating from home.

My skepticism is pretty apparent, isn't it!   This goes on like this for 30 minutes or so and then there's a debrief between the puppets and puppeteers.

The demo we participated in was no better than doing a table top case based learning discussion except now there were puppets carrying out certain "thought exercises"

My concern, from the perspective of the leader of the sim center was "So it's not safe for you to come to the sim lab in small groups, but it's okay for my team to come in and carry out your orders!?!?"

The decision as to what to do was based not on technology or redesigning systems. It was reached through reflection on what it means to be a healthcare professional. In speaking with other educators at hospitals and professional schools it became apparent that the over riding concern was figuring out how to continue delivering experiential learning without bringing people into work. And then it dawned on us: we're preparing learners who have chosen a profession that requires contact with patients. Indeed many of our learners continued to go to work in clinical environments where there were Covid patients, but we had shut them out of training opportunities where the simulated environment was MUCH SAFER than being in the hospital. Ultimately our senior leadership decided that simulation would resume in-person so long as it didn't impact staffing in the hospitals.

Once the decision was made to engage learners in-person, the rest was relatively easy and that meant identifying what screening and safety measures to put into place to make the learning environment as safe as possible. We worked without Workforce Safety and Employee Health teams to identify best practice implementations of the CDC and state guidelines. Everyone who enters a Northwell facility must complete an online health screening and, for a time, we were doing temperature checks. We love good marketing and signage, so we had social distancing reminders installed everywhere. The goal was 6 feet plus a mask, with recognition that actual patient care often requires people to be inside 6 feet of one another in a hospital room; therefore, our simulation rooms (the ones with mannequins or SPs) were rated for a total of 4 people based on room dimensions. Similarly, our debriefing and classroom spaces had occupancy limits based on size. We also added a variety of physical barriers where people sit together. We instituted an aggressive sanitization program—we were initially doing this ourselves, eventually our cleaning services picked up some of the workload.
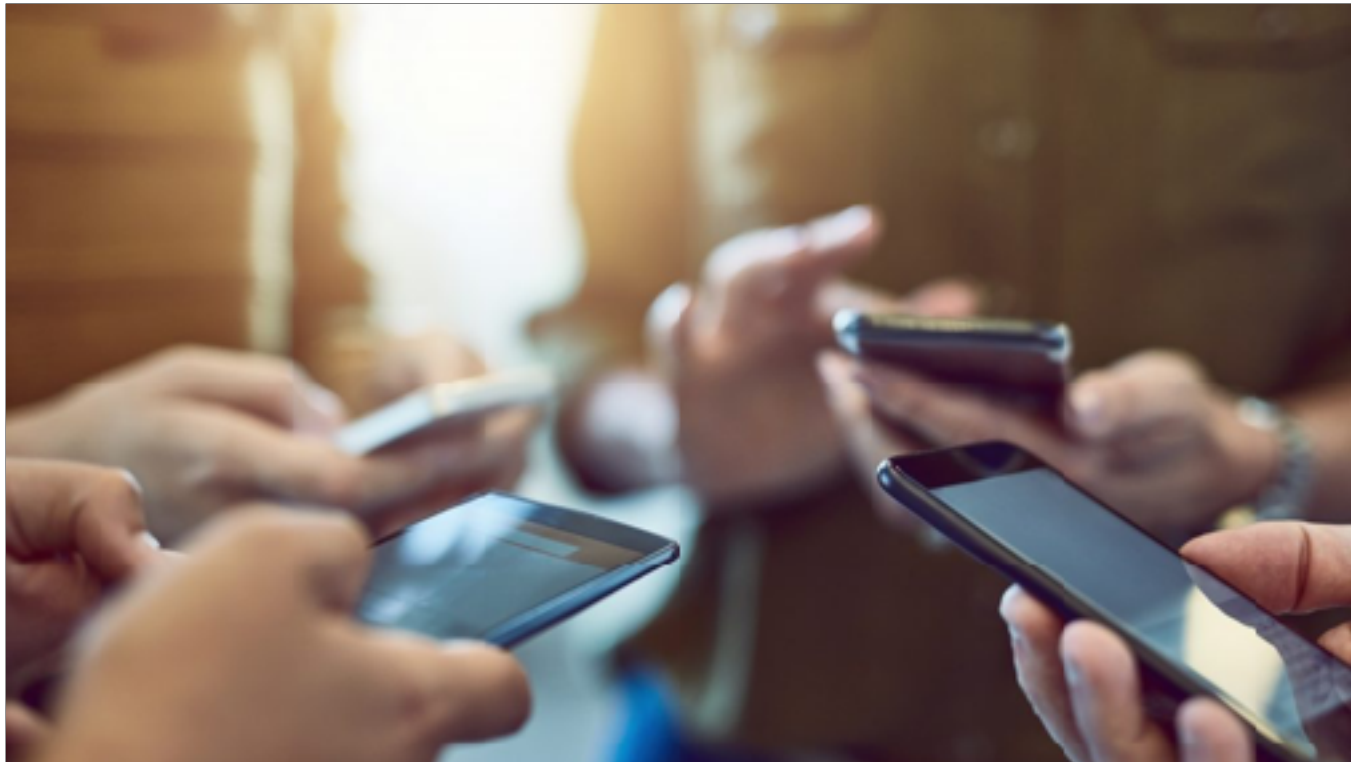
The social distancing and room occupancy requirements caused a bit of havoc to our operations schedule, as you might imagine. We'd been accustomed to having sometimes as many as 100 learners in the space at the same time. That couldn't continue. So we had to re-configure our calendar. Programs that would normally take 4 or 5 hours had to be scaled up to 8 hours to contain the number of people in the suite. How people moved into and around the suite also had to change. We couldn't have 100 learners showing up at 0745 and crowding the lobby to get screened and temp checked. We let technology help us here, employing a text-based queueing application like that used at restaurants and events: learners were sent a text with instructions about the screening process and a specific time to arrive in the lobby. This worked REALLY well for us…..until the company changed some of the features and now it's not as useful to us and we only use it for larger groups.

The system we put in place works! Our Workforce Safety Dept routinely inspects sites to monitor compliance and we always pass. Our learners were particularly enthusiastic about getting back to "new normal" doing regular simulation. We haven't heard a single complaint or concern about the social distancing and hygeine requirements......
and that makes sense because we simply mirrored what was being done in the hospitals.....there was consistency between the clinical side and educational side of the house.
During the entire pandemic…up to and including today…we've had only two potential exposures where a learner subsequently tested positive. We have a robust reporting system that tracks positive results and in both cases our staff were taken off line until their test results were negative, which they were.

The hardest part has been controlling behavior when teams are not engaged in patient care. This is an issue in our hospital break rooms and it transfers to the educational spaces. People want to sit next to one another! They move the chairs in the debrief and classrooms so they can sit closer.....maybe they are compensating in some way for the communication barrier presented by the masks, or maybe they're just REALLY friendly! Also they lower their masks to take a sip of water during a break without expanding the distance between one another. It requires constant monitoring and gentle reminders that the rules are still in effect.

Un-

We took an uncommon path to dealing with the pandemic.
Do you get it? That's the rapper and actor Common
We faced a lot of pressure to close down and do everything remotely. The pressure came from unlikely sources and the broadest characterization I could apply would be from people who were in education and leadership roles and no longer providing direct patient care. The care providers and most of our students wanted to resume simulation. But there were pockets of people who were afraid to leave their homes much less come in to teach. And we have to respect that fear for what it is while also not letting it cripple our educational system. Remember, we're educating learners to enter into a PROFESSION where they have to take care of the sick and injured. You don't get to pick and choose: I'll take the hip fracture and the cancer patient but not the HIV or Covid patient.

I need to take a moment to acknowledge that mine is basically a schoolhouse model where learners come from the hospitals or schools to the sim center and, as such, our situation is different from unit or hospital-based programs that may have handled the pandemic differently because the primary locus of activity is inside the hospital.

There were many hospitals that *increased* the pace of simulation in the units during the pandemic, using both table top and mannequin based sessions to tackle things like PPE safety, pronating patients, testing new processes and ventilator protocols etc. Simulation was also used to help nurses re-entering the workforce or those transitioning from one clinical environment to another; for example, from med-surg to critical care.

I'd point you to the article by Pan about how one NY hospital used simulation.
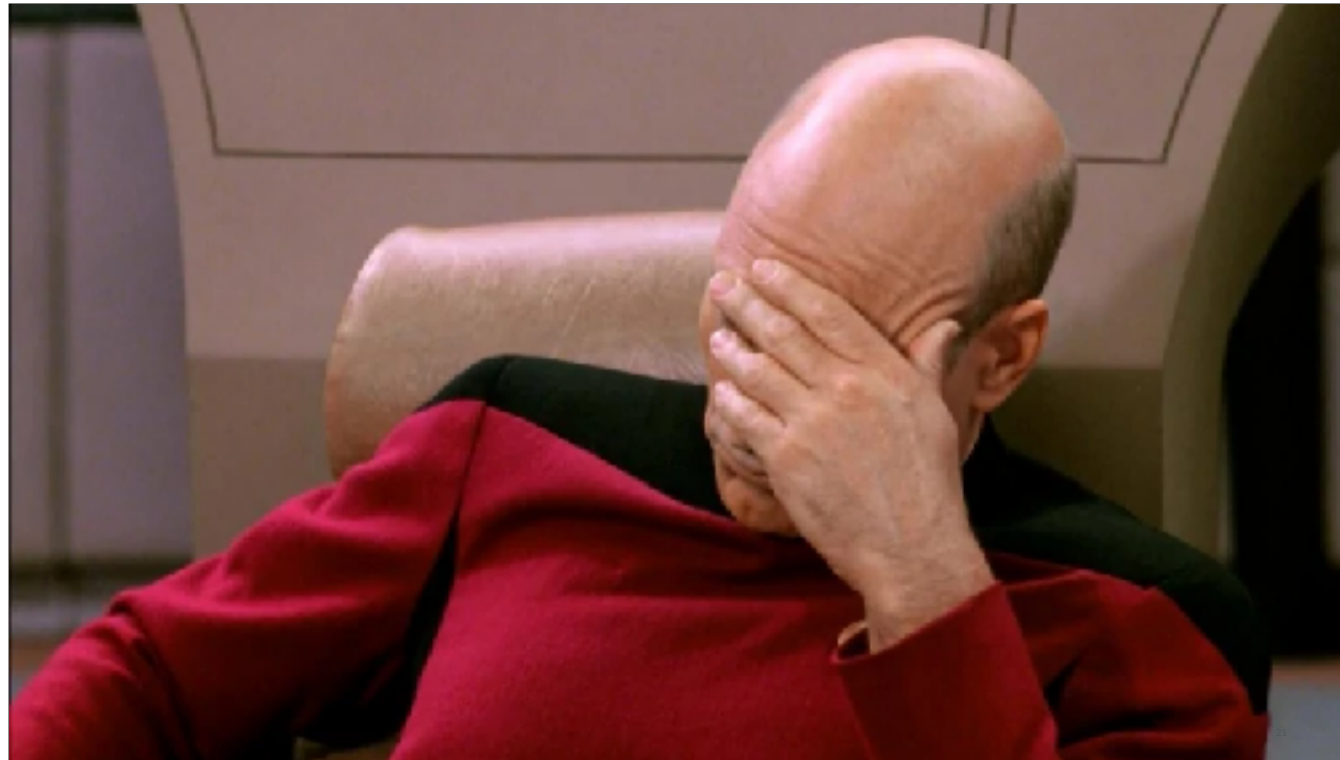
One of my favorite images, ever!
I participated in some virtual simulation conferences during the pandemic and I heard a couple of comments that made me assume this position:
From a dean of a nursing school: "My students won't come to the sim lab on campus. They will only do virtual learning, even though we're open"
From an associate dean of another school "My faculty refuse to come to campus or to the sim lab, they say it isn't safe"
From a sim educator "I don't know that we'll ever go back to in-person now that we have this….technology"
What are they saying?!?!? They're saying it's okay for nurses to go to the hospital (Where they were literally in danger during the opening weeks of the pandemic) but they're not willing to support their educational needs in environments that are practically sterile compared to a hospital covid unit. I think that's pretty outrageous.
Students refusing to come to class in a program that requires participation. That confuses me and although I'm certain that situation was uncommon it should make us all question our role in developing future professionals.

Ours is a caring profession. The vast majority of nurses engage their patients in a way similar to what is pictured here. They are in a room connecting with, treating, touching another human being who needs help. If we as educators truly believe that we should be preparing nurses for practice then we should be doing so in a realistic way. Yes, there theirare practice areas where patient care is delivered virtually; telehealth for example, and experiential learning should accommodate that. And, for sure, we shouldn't turn a cold shoulder to technology….VR and AR definitely have their place in a more global educational plan. But most patient care looks like this and so should the experiential learning used to prepare the learners. "Train as you fight" is a mantra often used in the military and it's the modern version of what Dewey and Kolb wrote about. You *can* train as you fight. We did. It's a matter of willpower and developing sensible safety guidelines.

Notes

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I have no potential or actual conflicts of interest to report.

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Thank You