HOSPITAL SYSTEM ACCELERATES LEARNING WITH VIRTUAL REALITY SOLUTION PERIOPSIM POWERED BY HP

The University Hospitals in Cleveland prepare perioperative nurses for the real Operating Room experience by adopting PeriopSim with VR, the HP Reverb VR headset, and HP ZBook 17 workstations.
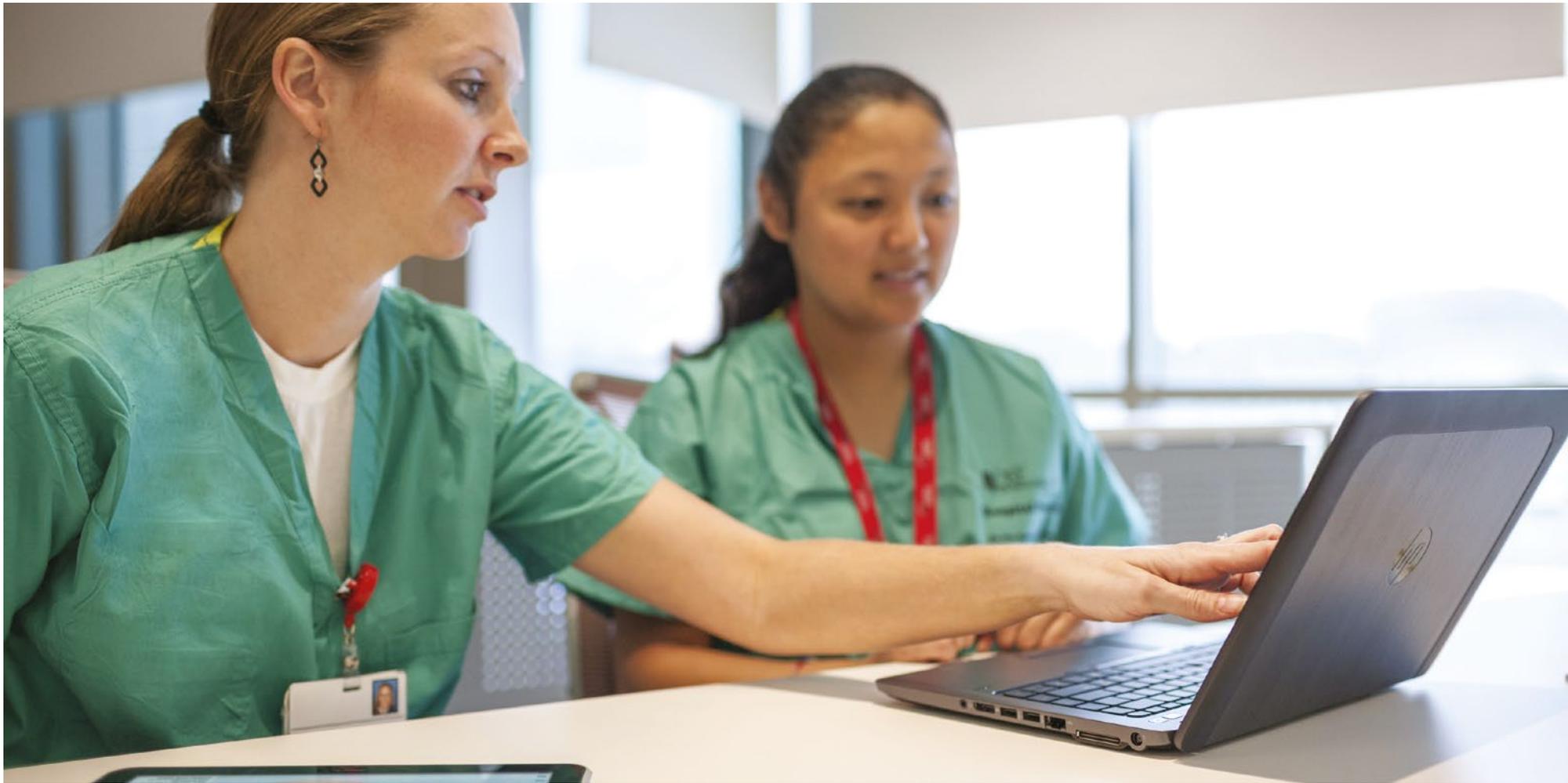
VIRTUAL REALITY DELIVERS IMMERSIVE OPERATING ROOM EXPERIENCE

The Operating Room (OR) is widely recognized as the heart of a hospital with an inherent sense of urgency that can be daunting and stressful, especially when that scenario is encountered for the first time. However, if a new nurse has already stepped into and been familiarized with a virtual OR, some of that initial apprehension slips away. By using simulated environments with powerful imagery and audio to create real world scenarios, virtual reality (VR) is fast becoming an ideal way to teach, and for students to retain knowledge. The University Hospitals in Cleveland are at the cutting edge of this trend to prepare perioperative nurses for the real OR experience: by adopting PeriopSim with VR and iPad® content, the HP Reverb VR headset, and HP ZBook 17 workstations with powerful Intel® Core™ processors and high-end graphics.

University Hospitals

INDUSTRY:
Education

OBJECTIVE:
Train nurses in operating room setting

APPROACH:
Leverage gamification technology to create an immersive experience that accelerates learning, increases efficiency, and bolsters confidence in the Operating Room.

New tool empowers nurses

Perioperative nurses at University Hospitals have developed a voracious appetite to learn through simulation. By using PeriopSim, the hospital system has shaved time off orientation as learners use a virtual reality tool to practice the use of instruments in a real-life setting.

Focused on patient-centric care, nurses at University Hospitals are trained to be at the front line of caregiving. As a result, their knowledge and competency are paramount to a teaching hospital as it educates and trains new nurses.

Established in 1866, the University Hospitals system has grown from a single hospital into a multihospital health system that includes an academic medical center, 18 hospitals, 40 health centers, and several medical practices that serve more than a million people in Northeast Ohio.

Maggie (Francesca) Logterman, team lead, professional development specialists at University Hospitals, is responsible for the curriculum that brings nurses up to speed. PeriopSim was a natural fit as she looked to integrate it with the new nurse orientation program. Designed to bridge the gap between the classroom and the OR, the tool helps students learn procedures and instrumentation in surgery. Research conducted by Conquer Experience shows the PeriopSim platform performs six times faster and is more effective than traditional methods.

"The staff says that they come into the room better prepared, knowing a larger number of instruments because we do have them view all of the modules," Logterman explains. "They learn a larger body of instruments. Inherent in that is that it increases the learner's confidence when they go into the room. Then, when they go home after viewing the modules, they know more than they did the day before."

University Hospitals became an early adopter of PeriopSim and continues to be the first customer for many of the new innovations like VR. The hospital system's information technology department was also part of the process to create a robust learning solution. The hospital's team worked closely with HP and PeriopSim to use a portable, high-functioning workstation that allowed educators to take it anywhere, anytime, without being tied to one location.

"We wanted to know: Is this something we could build a process around both the PC and the

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Amy Boone, System Director for Perioperative Services, University Hospitals in Cleveland

ABOUT PERIOPSIM:

PeriopSim, developed by Conquer Experience Inc., is a Learning & Assessment System for healthcare professionals who need to learn about surgical instruments, devices, and procedures. Developed in close collaboration with surgeons, nurses, educators, and neuroscientists, PeriopSim targets realistic learning outcomes using Virtual Reality and Tablet apps. Using video of real surgeries and voice prompts, users are guided through a surgery and prompted to pass the correct instruments at every step. Gamification techniques such as scoring and timed challenges motivate learners to practice and hone their skills. It is designed for both students and experienced nurses preparing to join a surgical team.

equipment being used that is supportable from an IT perspective, as well as something that could be set up by the nursing educators without having to call IT?" recalls Chris Parvin, end user computing architect at University Hospitals.

Parvin and his team, who manage 37,000 devices across the hospital's infrastructure, wanted to ensure the process was seamless for the teaching environment. A documentation plan along with quick troubleshooting tips have yielded positive results. The perioperative nurse trainers can now handle challenges on their own, Parvin says.

"As an IT leader I want to enable our clinicians with the latest cutting-edge technology," he adds. "I'm very happy with the adoption and outcome. Seeing how quickly and eagerly the students engaged with the VR technology made it clear to me that it was absolutely worth the effort."

Stepping into the virtual world

When PeriopSim joined the suite of learning solutions, University Hospitals was ready and raring to take it on. Developed in close collaboration with surgeons, nurses, educators, and neuroscientists, PeriopSim offers students the opportunity to virtually enter an OR before they do it in real life. The cost-effective platform can be used independently or in conjunction with PeriopSim for iPad with other modules. An hour-long procedure can take approximately 10 minutes with PeriopSim.

"You find yourself in a situation room and the surgeon is asking for equipment and you're handing it over," explains Amy Boone, system director for perioperative services, University Hospitals. "It's a really great low-stress environment for new employees. The real OR tends to be very stressful, especially in the middle of an active case."

The gamification aspect of the tool appeals to millennials, who make up the majority of the hospital system's nursing candidate population. In simulated life-size OR, learners practice steps of a procedure, passing techniques, and instrumentation. Videos explain the use of each tool, reinforcing learning and building competency.

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> Chris Parvin, End User Computing Architect, University Hospitals in Cleveland

CUSTOMER AT A GLANCE

University Hospitals

APPLICATION:
Simulation and Virtual Reality course content for perioperative nurse and technician orientation in surgery

HARDWARE:
- HP ZBook 17 G5 mobile workstation
  - Intel® Core™ i7-8850H processor
  - NVIDIA® Quadro P4200 graphics
- HP Reverb Virtual Reality Headset

SOFTWARE:
PeriopSim medical simulation training modules and PeriopSimVR for surgical team members

"IT WAS A GREAT WAY TO SPEND OUR EDUCATIONAL DOLLARS. I THINK WE'RE MORE THAN GETTING OUR MONEY BACK ON IT."

Maggie (Francesca) Logterman, Team Lead, Professional Development Specialists, University Hospitals in Cleveland

"What happens from a budget perspective is commonly we're asked to do things faster and less expensively," Boone says. "We're trying to streamline and reduce the time in orientation. One of the ways we're able to do that is by using this technological platform and knowing that our new millennials love this kind of new hands-on, virtual reality app. It's not one of those situations where you have to say, 'don't forget you have to do this.' They just pull it and do it themselves."

University Hospitals treats the PeriopSimVR as a progressive module. At a certain point in the curriculum, students transition from PeriopSim iPad to the VR experience to learn in a virtual world.

"As an educator it has freed up a lot of my time to work with the students that aren't getting it," Logterman says.

Realistic outcomes for learners

Technology has enabled University Hospitals to build an interactive classroom, deepening student engagement. PeriopSim's approach fit in with Logterman's plans to create an environment that nurtures interaction.

"It brings this kind of energy to our periop orientation that we didn't have before," Boone says. "There's excitement for us, but there's also excitement for the students. They love using it."

Within the first six months of its use, the hospital system was able to cut eight hours off from Instrument Day, which is part of the orientation schedule. It is not unusual for students to get competitive while using the tool, and look to increase their scores on the applications.

Even after orientation, students are hungry for content and are eager to apply it in an active setting. While University Hospitals intends to instill a Level 2 assessment in the near future, initial tracking shows a positive trend in satisfaction scores. For example, on a five-point grading scale, the average satisfaction score is 4.8.

"That tells me that's not just me doing a good job, they're getting what they need out of it," Logterman says.

Over the last two years University Hospitals has used PeriopSim with 133 learners, clocking more than 414 hours of simulation across five procedures and 24 instrument sets, outside the OR. The result is an education productivity increase of 2,483 hours (more than one year of effort for an educator or preceptor).

From a curriculum integration perspective this translates into an average of 57 experiences per learner with three simulation hours. From a safety perspective this means that the learners used the instrument sets and procedures 57 times before they got to the real OR.

Numbers aside, educators also have noticed students who move into active service are asking to use the platform again to review instruments. Staff in the OR have observed an increase in competency. There is a strong correlation between students who excel at the modules and their assimilation into the OR. These students are able to anticipate the demands of the room.

"It was a great way to spend our educational dollars. I think we're more than getting our money back on it," Logterman says.

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