

Health Scholars' E-guide Series:

How Virtual Reality Can Help EMS and Hospital Leadership Face Today's Top Challenges

**VOL
01**



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HOW VIRTUAL REALITY CAN HELP EMS AND HOSPITAL LEADERSHIP FACE TODAY'S TOP CHALLENGES



VR-TRAINED LEARNERS WERE UP TO 4X MORE FOCUSED DURING TRAINING.¹

TOP CHALLENGES FACING EMS AND HOSPITAL LEADERS IN 2021



Improving provider safety and wellness while avoiding burnout



Overcoming significant capital and resource constraints



Contending with the sudden demand for remote and telemedicine solutions



Reducing turnover and recruiting, amid an already-known shortage



Shifting provider expectations regarding workload, pay, technology and resources



Understanding how to effectively activate and use the growing access to data



Today's healthcare industry is quickly transforming to adapt to current times: COVID-19, an economic downturn and staff shortages. Given the increased attention on our industry, the public now realizes what we've known all along: the tremendous value healthcare and public safety providers offer and how much they're doing within their now-obvious constraints. It's clear to everyone that providers need the training, resources and equipment requisite for success.

As we move into 2021, patient safety will remain a top priority for EMS and hospital leadership. Providers must be prepared

for the pandemic response, vaccine rollout and increased demand for clinical care. And beyond this herculean task, we're still contending with all of the everyday challenges we faced before COVID-19, which its emergenc has exacerbated.

More than ever, health and public safety agencies are tasked with finding ways to work around increasing gaps in care and disparities. They are taking creative approaches to their day-to-day operations, provider readiness, and mandated training leaving behind antiquated resources that aren't relevant to their current needs.

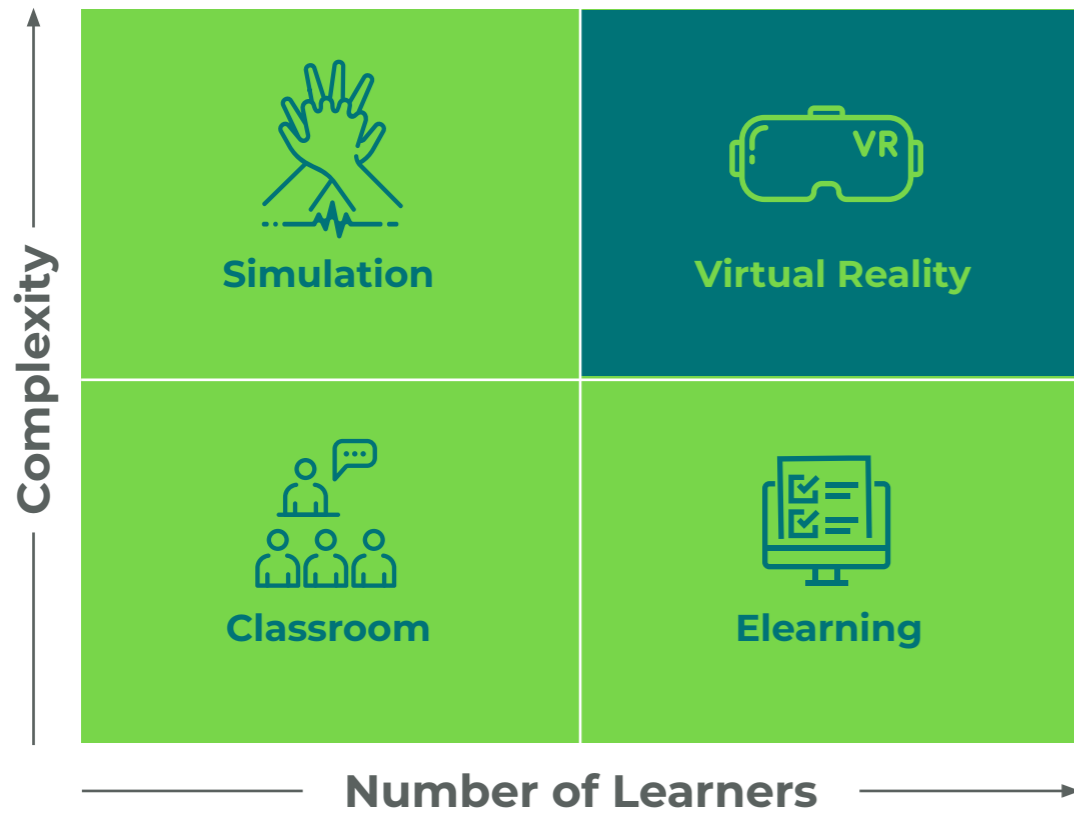
75%

VR REDUCED THE NUMBER OF EDUCATORS/PROCTORS NEEDED TO RUN A SUCCESSFUL SIMULATION BY 75%.²

So, where do you start? One way to address these issues is experiential learning opportunities for healthcare professionals. It's an important way to help impart and refresh cognitive, psychomotor and affective skills known to reduce readiness anxiety and medical error. However, clinical learning opportunities are strained given today's healthcare environment, and physical modalities are no longer feasible due to distancing. Available training

options are not immersive enough, don't scale well, are expensive and require time that providers don't have.

Technological advances now allow us to offer a better approach using virtual reality (VR). This modality makes experiential learning accessible, affordable, memorable and simple.



WHY VR WORKS FOR CLINICAL TRAINING

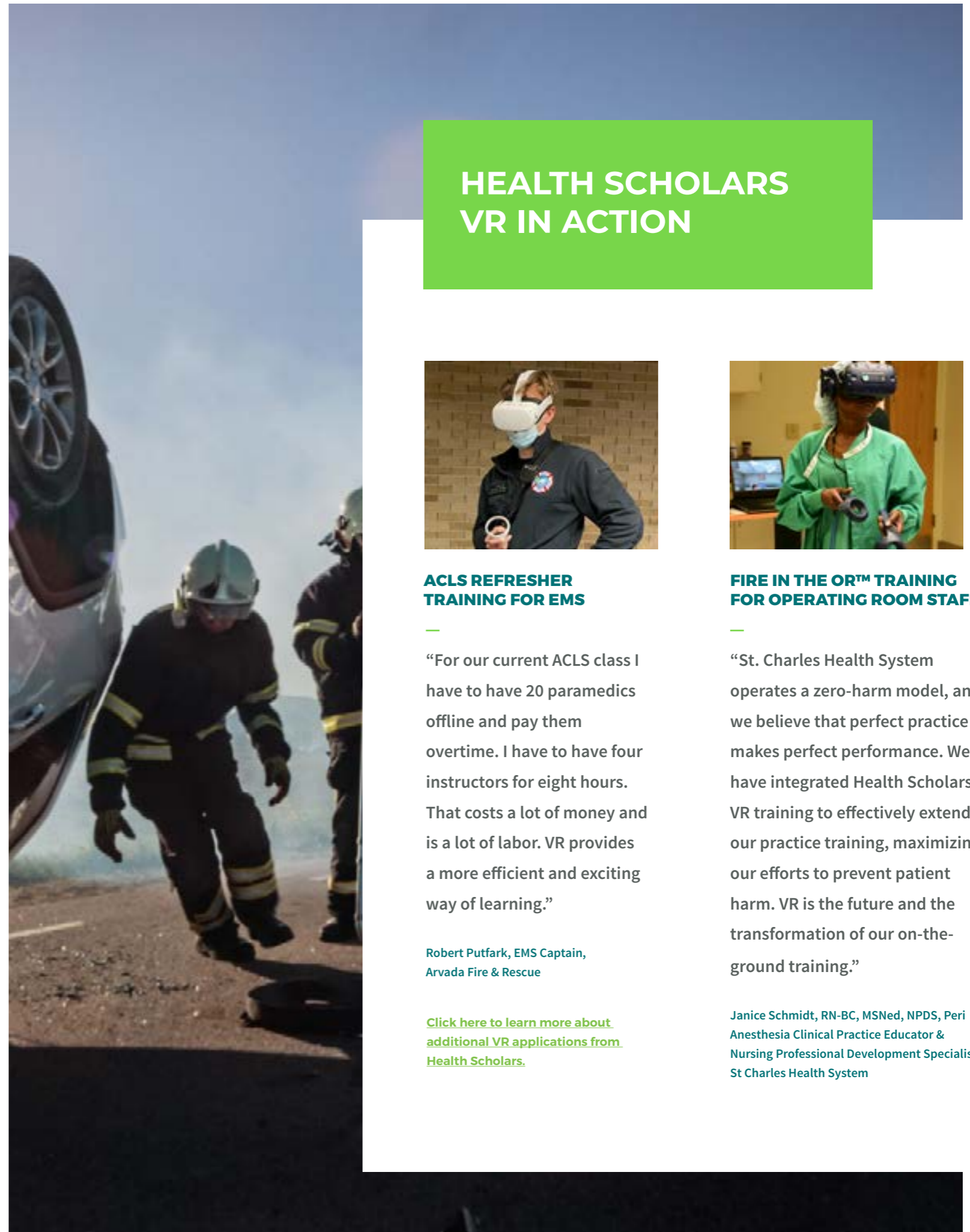
Using a headset, VR allows you to replace your real-world environment with a digital one, either using 360-degree video or computer-generated images (CGI). When you wear the headset, you're fully immersed in a scenario that can offer physical interaction and even sensory inputs like audio, acceleration, balance, temperature, pressure, touch and smell.

When in a clinical training context, VR allows providers to safely train for high-risk scenarios in a real life

environment, without the need for expensive equipment or other team members to be physically present.

Health Scholars uses AI-enabled voice technology that gives learners the ability to engage in real-time conversations with virtual characters as they would in a physical simulation. It allows providers to practice their communication and cognitive skills in a virtual environment.

3.75x VR LEARNERS ARE 3.75X MORE EMOTIONALLY CONNECTED TO CONTENT THAN CLASSROOM LEARNERS.³



HEALTH SCHOLARS VR IN ACTION



ACLS REFRESHER TRAINING FOR EMS

“For our current ACLS class I have to have 20 paramedics offline and pay them overtime. I have to have four instructors for eight hours. That costs a lot of money and is a lot of labor. VR provides a more efficient and exciting way of learning.”

Robert Putfark, EMS Captain, Arvada Fire & Rescue

[Click here to learn more about additional VR applications from Health Scholars.](#)



FIRE IN THE OR™ TRAINING FOR OPERATING ROOM STAFF

“St. Charles Health System operates a zero-harm model, and we believe that perfect practice makes perfect performance. We have integrated Health Scholars VR training to effectively extend our practice training, maximizing our efforts to prevent patient harm. VR is the future and the transformation of our on-the-ground training.”

Janice Schmidt, RN-BC, MSNed, NPDS, Peri Anesthesia Clinical Practice Educator & Nursing Professional Development Specialist, St Charles Health System

THE POWER OF IMMERSION

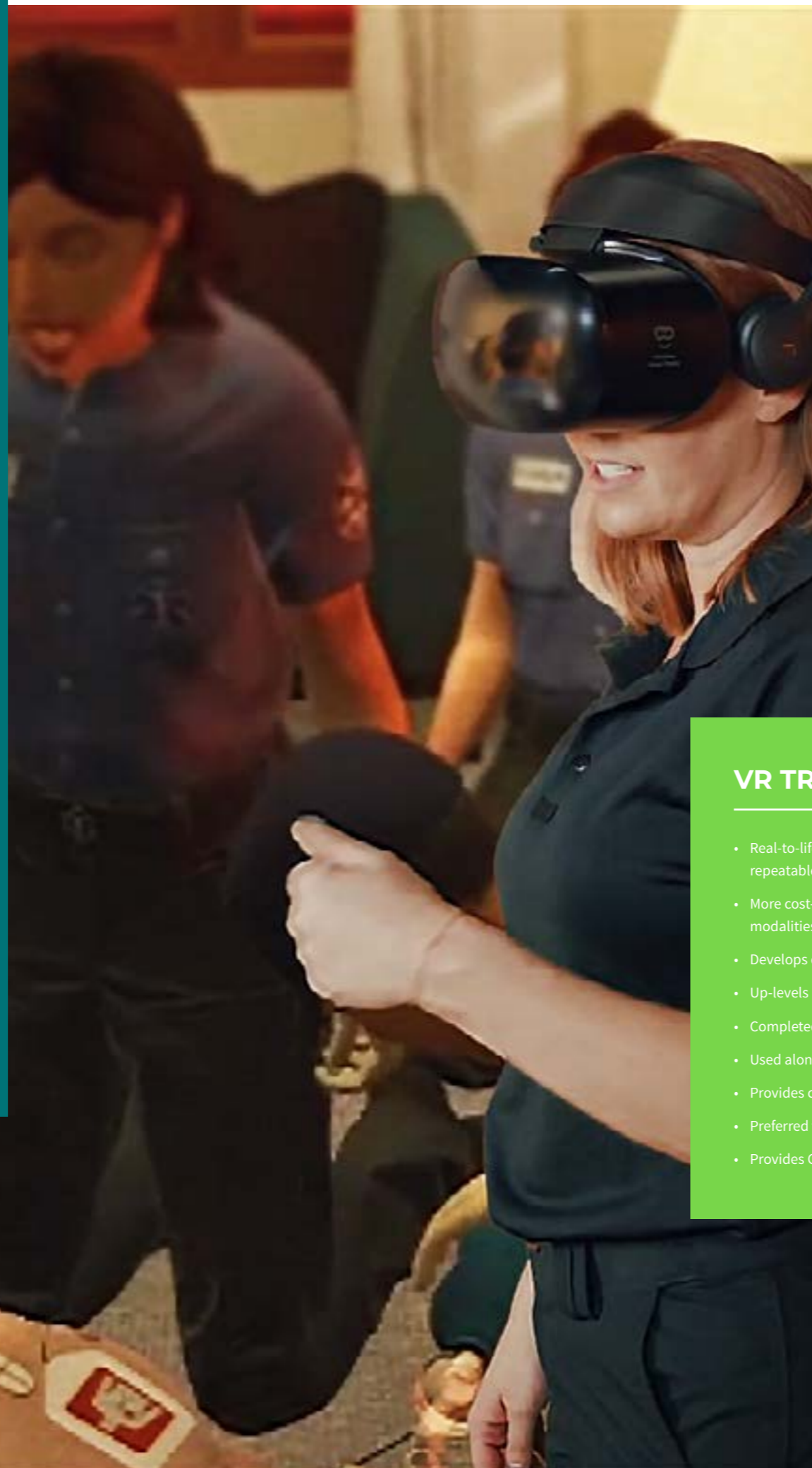
Because VR training allows learners to mimic and engage in real-life situations, the virtual interactions activate the same neural pathways in the brain as though they were practicing a physical simulation. It also allows them to lose themselves in the experience, giving them real presence in the scene and triggering empathy.

Plus, learners can train as often as they need to. Each time, they'll make decisions that affect the situation they're engaging in and receive real-time feedback that helps prepare them for real-world situations.

IDEAL USE CASES FOR VR

VR can help your organization in several key areas:

- Workflow Training & Error Reduction
- Competency Validation
- Cognitive & Procedural Training
- Empathy Training
- Patient Assessment/Diagnostic Training
- Certification
- Remediation/Prep



VR FOR HEALTHCARE TRAINING

Your providers need the right training. And you need to provide it in a cost-effective way that can scale across your entire organization. VR offers on-demand experience-

based training and assessment to any size population. It not only increases the frequency of training, it's also directly correlated with:



BETTER PERFORMANCE



IMPROVED RETENTION



REDUCED READINESS ANXIETY

VR TRAINING

- Real-to-life training anytime, anywhere and easily repeatable
- More cost-effective compared to traditional training modalities
- Develops critical cognitive and communication skills
- Up-levels provider skills
- Completed with or without an instructor
- Used alone or to complement blended learning curricula
- Provides consistent, unbiased performance assessment
- Preferred training method for new providers
- Provides CE and CAPCE-accredited training

VS

TRADITIONAL TRAINING

- Not immersive
- Can't scale physical simulation
- Lack of cognitive skills practice
- Limited analytics and reporting
- Not readily repeatable
- Low agility and lack of mobility to handle the pace of change in healthcare and public safety
- Doesn't engage new providers
- Provides CE and CAPCE-accredited training

Due to COVID-19 the distributive education limits will be removed for the recertification cycle ending March 30, 2021 (EMT, AEMT and paramedic) and September 30, 2021 (EMR). Anyone due to recertify on March 30, 2021 will have

no limits on distributive education which is the perfect opening to start using VR training through any state-accepted or CAPCE-accredited program or education site.⁴



VR IMPROVES PROVIDER READINESS

Studies from organizations like the American Heart Association (AHA)⁵ and the American Academy of Pediatrics (AAP)⁶ have shown a need for deliberate and spaced practice in healthcare training. They encourage frequent cognitive and psychomotor competency evaluation as part of a comprehensive training program. Both AHA and the AAP have recognized and recommended VR as a valid modality for repeatable resuscitation practice. VR is an ideal solution because learners can repeat the training as often as necessary, building muscle memory, knowledge retention and confidence. Plus, VR training enables real-to-life reference experiences, making them more memorable and impactful as the following studies show:

According to the study, **Performance evaluation of AR/VR training technologies for EMS first responders,**⁷

using AR/VR training improved the accuracy of the first responders by a factor of 46% and the speed on executing tasks by 29%.

Another study, **The Applications of Virtual Reality Technology in Medical Groups Teaching,**⁸ indicated that virtual reality training has improved learning by 74%, resulting in an 87% improvement in medical practice accuracy.

And for surgeons a study from Harvard Business Review⁹ showed that VR training “improved participants’ overall surgical performance by 230% compared with traditional training methods.” The VR-trained participants could complete procedures on average 20% faster and more accurately.

VR CAN PROMOTE PROVIDER SAFETY AND WELLNESS

EMS and Health providers often encounter tragic, stressful, and extreme situations in their duties, which can take a mental toll in the form of post-traumatic stress disorder (PTSD), depression, panic disorder and other operational stress injuries. 30% of first responders show signs of mental trauma.¹⁰ Properly preparing providers for high-risk, low-frequency events such as pediatric emergencies may help, and targeted VR applications can ensure they have the training they need ahead of time.

Through highly-immersive simulations therapists can create triggering scenarios in the office allowing patients to control the level of the experience instead of taking them to a crowded place and forcing them to interact. It provides a more controlled environment that can easily be repeated.

But it doesn’t end there. VR is being tested to help stimulate memory in people with dementia. In the study, **Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems,**¹¹ the authors say that their key finding was that encounters in the virtual environments helped the patients recall old memories.

At the St. George Hospital in the UK, VR headsets were used to reduce patient anxiety during wide awake surgeries. According to the test patients, 100% said wearing the headset improved their overall hospital experience and 94% said they felt more relaxed. 80% said they felt less pain and 73% reported feeling less anxious wearing the mask.¹²

VR IS COST-EFFECTIVE

Dealing with tight budgets and overworked employees can limit the type of training programs you can offer. VR is an on-demand solution that doesn’t require an instructor or other participants, so staff isn’t offline and doesn’t require overtime pay. Our customer, Cedars-Sinai, saved

\$100,000 avoiding backfill by using our Fire in the OR™ application for their mandated fire safety training. Because the training was available on-demand and OR staff could schedule via our Virtual Learning System, learners could complete the 30-minute training during downtime.



Overall, VR costs 83% less than manikin simulation,¹³ and can yield better results than traditional online and instructor-led courses. Plus, VR hardware is more affordable than ever with the enterprise Oculus Quest 2 enterprise headset.

Health Scholars also offers managed services with the Quest 2, so educators can focus on training, not managing equipment inventory, health, or updates.

- We provide the Oculus Quest 2 enterprise headset to you fully loaded with your subscribed Health Scholars applications.
- We manage and maintain Health Scholars’ applications and any Oculus for Business updates.
- We manage the maintenance of the hardware for you and your team.
- Plus, should a headset need troubleshooting or maintenance, we provide you with a replacement headset.

**HIGH
TURNOVER =
HIGH
COSTS**

5%

of an annual operating budget goes toward employee turnover costs

HERE'S THE CURRENT STATE OF HEALTHCARE TURNOVER FOR KEY POSITIONS:

25%

turnover rate for pre-hospital professionals (i.e. EMTs and paramedics)

15%

turnover rate for nursing

THESE HIGH RATES CAN LEAD TO MASSIVE PROFIT LOSSES:

**\$40,300 -
\$64,000**

costs for one bedside RN. Resulting in **\$4.4M - \$6.9M** lost for an average hospital



VR CAN REDUCE TURNOVER AND IMPROVE RECRUITING

Providers' training expectations are shifting. Tired of passive, check-the-box training exercises that pull them away from their jobs or time off, experienced providers want more engaging training opportunities. Similarly, new providers have grown up in a digital world and expect tools and resources to be on-demand.

Universities and other educational institutions are already using VR. Henry Curtis, MD, emergency medical clinical instructor at the Stanford University School of Medicine, uses a VR game to train physicians¹⁴ to properly triage and manage pediatric patients in a mass-casualty scenario. And even before COVID

drove a greater need for remote learning, Georgian College is now exploring VR and simulation technologies¹⁵ for use in its programs.

Healthcare systems are also beginning to make this shift, investing in more current technology like VR. It's a critical move since the top reason¹⁶ millennial and Gen-X employees leave a company is a lack of career development that includes robust training and educational opportunities. And research¹⁷ indicates healthcare lags behind other industries on training time (25.5 hours per year compared to 34.1) and investment in training (\$602 per employee each year compare

VR GIVES YOU HELPFUL DATA AND INSIGHTS

VR allows you to show your training plans' efficacy and prove your ROI. When you use the technology, every action a learner completes is collected, including their gaze and movements. You can see time spent on the action and communications, reactions, listening ability and other critical thinking elements. The right VR

program will use those inputs to give you comprehensive reporting on learner readiness and data-driven feedback on targeted areas that require reinforcement. The insights can help you drive your quality improvement initiatives forward in a more meaningful way.



VR and AR training improved cadets' memory recall for locating objects by 45 percent and improved their speed by nearly 30 percent.²²



BETTER REPORTING, BETTER RESULTS

Our Readiness Assessment Reporting captures and measures clinical domain, communication and decision-making performance. We provide real-time graphical reporting tools and in-depth performance readiness reports. They allow you to dive into learner proficiency and vulnerability insights at the individual, institution or system-wide level to inform targeted learning opportunities that can close readiness gaps.

Sources: EMS1,¹⁸ Becker's Healthcare,¹⁹ Healthcare Management Review,²⁰ National Healthcare Retention & RN Staffing survey²¹

THE FUTURE OF HEALTHCARE TRAINING IS HERE

MAJOR INSTITUTIONS ARE ALREADY ON BOARD, USING VR APPLICATIONS IN THEIR HEALTHCARE TRAINING PROGRAMS. SOME OF OUR CUSTOMER INCLUDE:



VR is no longer an outlier in healthcare education. The AHA recognized it as a valid training modality in its 2021 guidelines,²³ the Commission on Accreditation for Pre-Hospital Continuing Education (CAPCE) created a new category for VR learning (and Health Scholars was the first to receive CAPCE accreditation

for our VR products) and grants for pre-and in-hospital training are now accepting VR (or reviewing acceptance criteria to modify standards).

If your organization is like many others, seeking new ways to address the major issues

you're facing, consider exploring VR on a deeper level to see how it can impact your operational overhead, increase your retention and improve patient safety.

STAY TUNED FOR OUR UPCOMING EGUIDES:

- [The Evidence: Data and Customer Stories on Virtual Reality Training Effectiveness in EMS and Hospital](#)
- [Getting Started and Best Practices for Implementing a Clinical Virtual Reality Training Program](#)
- [Virtual Reality Clinical Training and Preparedness: Insights and Predictions for 2022](#)

Sign up today and we'll send you each guide as soon as it's published. In the meantime, please visit healthscholars.com for more resources.



ABOUT HEALTH SCHOLARS

Provider readiness is everything. It is critical to your team's health and well-being and the patients they serve. And it's our mission. We exist to improve first responder and hospital provider readiness, resiliency and performance. How? With on-demand, voice-directed virtual reality (VR) simulation training.

Our VR system delivers the most accurate, interactive and measurable VR training experience possible. Everything we do is focused on the practice and assessment of required, high-stakes clinical training for adult and pediatric scenarios in pre-hospital, general care, perioperative and obstetrical settings.





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