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Medical Video Games For Sharper Surgeons, Healthier Astronauts; Level Ex CEO Provides Demo

Article includes a link to an interactive demo

by [Marion Webb](#)

Operating “at the intersection of medicine and entertainment,” Level Ex is partnering with medical device companies to create specific video gaming content to train surgeons on new products, and creating sponsored content for free for physicians.

Level Ex founder and CEO Sam Glassenberg is on a mission – both in deep space and on earth – to put video gaming to work for better health.

“We’ve carved out a distinct space at the intersection of medicine and entertainment,” says the Chicago-based company, whose medical video games serve to advance the skills of surgeons and physicians and support medtech companies’ education and promotion needs.

The company’s products already have more than 1 million users, including medical professionals, surgeons, medical students, and medical device representatives.

Level Ex has partnered with 30 out of the top 40 life sciences and medical device companies, including [Medtronic plc](#), [Johnson & Johnson \(Pty\) Ltd](#) and [Boston Scientific Corporation](#), to provide content around devices and clinical study data.

The firm charges its medical device clients a subscription fee for building specific content around their devices. Pricing depends on multiple factors, such as the complexity of the content, how many sales reps will be using it, the audience, but typically starting at several hundreds of



SAM GLASSENBERG, CEO OF LEVEL EX Source: Level Ex

thousands of dollars, Glassenberg told *Medtech Insight*.

Its interactive games allow sales representative to train surgeons on new devices on virtual patients, and for surgeons to collaborate and train together. Glassenberg explained that medical device companies can use these techniques to “explore the advantage of a device,” “explore how to properly use that device” and “optimize the devices themselves” from anywhere in the world.

Physicians can freely access video-based training via a web browser on Zoom or [Microsoft Corporation](#) Microsoft Teams, or via an app using an iOS or Android device, and earn continuing medical education credits.

Playing Orthopedics, Oncology Medtech Video Games

In 2020, Level Ex started building content in the areas of orthopedics and oncology, specifically for medtech and pharma clients, which sales representatives can use to train doctors, he explained.

Glassenberg demonstrates via a shared link on Zoom how two users can train together on a virtual patient undergoing an [orthopedic procedure](#). He shows how a player can insert a tool, in this case a retractor to secure a surgical incision, then grab the tool to pull on one side to open up the surgical site near the knee while the other player simulates the same movements on the opposite side of the knee. He pointed to how a player can “actually control the elasticity of the tissue and how much it bounces back.”

In another video game, Glassenberg adds augmented reality to demonstrate the benefits of using Medtronic’s McGrath MAC video laryngoscope, used for airway intubation, on a virtual patient in the operating room. He noted how surgeons can get an unobstructed visual of the patient’s vocal cords without needing to assume an “awkward body position.”

Glassenberg believes that playing video games not only helps surgeons learn faster and more efficiently, but can also be a selling tool for medtechs. That is because it allows surgeons to intuitively understand the benefits of a device before they have it in hand and helps to ensure proper use once they do.

[Click here to explore this interactive content online](#) ✨

“The companies will tell us, ‘Hey we’re losing doctors or we’re getting bad outcomes because they’re using our device incorrectly,” Glassenberg said. Level Ex will then work with companies to identify the problem and build specific game content that “corrects the behavior and improves that skill.”

In other words, “We just create the content for them [customers], helping explain the benefits of their product and how to use it, and then doctors can either do it on their own or their sales reps and trainers can do it collaboratively,” he said.

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Moreover, there is no download, no installation or app required. Medical device and pharma clients can simply embed the Level Ex content on their own Healthcare Professionals (HCPs) website or Learning Management Systems, which are dedicated to educating and engaging health professionals.

Level Ex offers branded and unbranded content and allows pharma and medical device sponsors to create subcategories within games or provide extra content around clinical study data. About 60% of clinicians play video games to practice and 40% play for continuing medical education, he said. The lion’s share of users interact with Level Ex’s content on their mobile phones. Only about 80,000 users explore mixed reality content with roughly 8,000 of users experiencing content with a headset. (Also see "[Minute Insight: Smith + Nephew Expands VR-based Surgical Training](#)" - Medtech Insight, 23 Sep, 2022.)

“We’re creating content that doctors love to play, and they come back to play over and over again, and when they come, they also can learn about new devices,” Glassenberg explained. “When we launch our games, we launch it with a subset of content [maybe 20 to 30 cases], and then based on feedback from the doctor and seeing what they play, where they’re challenged, what cases they’re playing the most, that dictates the next content we release.”

Level Ex uses the data to make content better and also runs efficiency studies to validate the content. He said the firm has done multiple studies to show that playing its video games can improve procedural performance and diagnostic performance.

The company currently offers five medical device games: Its newest game, Top Derm, available in the App Store, was developed with 140 dermatology experts and offers high-resolution imagery of any skin disorder on any region of the body and any skin tone. Its portfolio also includes Cardio Ex featuring cardiology cases, such as acute myocardial infarction and atrial fibrillation; Airway Ex for anesthesiologists and airway specialists; Pulm Ex for pulmonologists; Gastro Ex for gastroenterologists and colorectal surgeons; and content around COVID-19.

Coming Soon: Spine Games

In 2023, Level Ex plans to add a new app for spinal procedures. Beyond that, its focus is to “expand, capture new procedures, help more medical device companies in different therapeutic areas and accelerate the adoption curve of their products.”

From Hollywood To Health

Level Ex, which was acquired by German digital medical technology company [Brainlab AG](#) in 2020 for an undisclosed amount, continues to run as an independent company with Glassenberg at the helm.

From 2008 until 2016, Glassenberg, who has an advanced degree in computer science graphics from Stanford University and a degree in computer engineering, was the CEO of FTX Games from April 2008 until it was bought by Playtech in 2016. FTX built video games based on major Hollywood movies such as The Hunger Games and Mission Impossible. (Also see "[Market Intel: How Augmented, Mixed And Virtual Reality Tech Unveils New Possibilities For Surgeons](#)" - Medtech Insight, 15 Jun, 2021.)

Glassenberg built his first video game for training surgeons in 2012 after his father, an anesthesiologist, asked him to create a game to help his colleagues perform a complex procedure. Recognizing broader demand among surgeons to advance their clinical skills using virtual tools, Glassenberg founded Level Ex in 2015.

Glassenberg looks forward to bringing its medical video games to SpaceX astronauts aboard Polaris Dawn, the first of up to three spaceflights in the Polaris Program. Level Ex will contribute to Polaris Dawn research by providing the crew with a just-in-time ultrasound training module to scan themselves and collect medical-grade images to help the non-physician astronauts understand changes happening in their body.

According to Glassenberg, Level Ex received a “multi-million-dollar” grant from the Translational Research Institute for Space Health (TRISH) and NASA to build ultrasound training for the space mission, but the same technology is also used here on earth with “[Philips Healthcare](#) and others to train doctors how to do ultrasound procedures,” he said.