mSurgery

Live immersive surgical experience

Redefining Surgical Training: From Physical Presence to Immersive Telepresence with mSurgery

Bridging the Gap: The Evolution from Traditional Observation to Virtual Immersion

Observation of a surgical procedure is an integral part of any stage of surgical training. It has been practiced for years, and we all know that conducting it safely and effectively is a daily challenge. **It is a routine part of any hospital's operations, embedded in every surgical residency program, and nearly all medical residency programs.** Both seasoned surgeons and trainees are well-versed in this method of training, despite its logistical difficulties:

FOMO (Fear of Missing Out): If you're not in the operating room at that moment, you miss the opportunity to learn from that surgery. **You must meticulously adjust your schedule to be present!**

LIMITED

Space limitations: How many residents and students can actually fit into the operating room during surgery?

We want to introduce you to how mSurgery offers a solution to these challenges with a unique proposal that can be integrated into any surgical observation program. **This solution leverages current technological capabilities and is applicable in any surgical setting**—whether it's open surgery, minimally invasive surgery, robotic surgery, neurosurgery, etc. **mSurgery replaces the need for physical presence in the operating room with a virtual presence in that very room, without simulating the surgical procedure.**

As we all understand the significant difference in training between merely watching a surgery and actually being present in the operating room, mSurgery offers a method that not only enhances observational capacity (allowing you to see more and with greater clarity than if you were physically in the OR) but also creates a true sense of presence through the advanced use of mixed reality.

Seeing is not the same as being

What is mSurgery?

mSurgery is an advanced software platform that enables the transmission of any surgical procedure from the operating room to any location with internet access, either in real-time or as a fully immersive "live simulation" (reproducing the entire procedure exactly as it occurred). The platform delivers an experience so immersive that it replicates the realism of physically being in the operating room.

mSurgery functions as an exclusive, immersive webinar platform (iWebinar) that transforms every surgical observation into an educational session led by specialists. By leveraging the power of high-bandwidth internet and cloud computing, mSurgery creates an effective learning environment within surgical observation programs, eliminating the need for physical presence in the operating room. This allows for the observation of any surgical procedure from the comfort of one's home or from an auditorium.

Technologically, mSurgery integrates the best features of video conferencing platforms, commercial streaming services, and e-learning systems to offer a superior solution for surgical training through observation. It is designed to enhance and expand the practice of surgical education, making it more accessible, efficient, and impactful than traditional in-person observation in the operating room.

mSurgery not only matches but exceeds the benefits of physical presence in the OR, enabling more effective and frequent surgical training that adapts to the demands of modern healthcare professionals.

We Recommend Using mSurgery with VR Headsets

While mSurgery is designed to be accessible from any device with a web browser—whether a computer, tablet, or smartphone—the platform truly shines and achieves its full potential when used with a commercial virtual reality (VR) headset. **These devices provide an unparalleled sense of presence in the operating room through mixed reality technology**, allowing users to feel as though they are physically there.

Moreover, the immersive viewing experience provided by VR headsets enhances the spectacular array of visualization options available for any surgical procedure. **mSurgery delivers surgical procedures in high definition (up to 4K UHD) and supports multi-screen formats**. With a VR headset, users can effortlessly select the number of screens they wish to view simultaneously, adjust the size of these screens (even creating the impression of sitting in front of a cinema screen), and interact with them in ways that significantly enhance learning and engagement.

Vision Grid: Expanding Your View of Surgery

In every surgical procedure, there are countless details and situations that we need to observe to truly learn and understand. **mSurgery is designed to ensure you don't miss a thing by displaying multiple perspectives simultaneously**. While we may only have two eyes, our brains are capable of processing multiple visual inputs at once. That's why mSurgery presents surgeries in a multi-screen, multi-camera format, allowing you to observe up to four live video feeds in perfect synchronization, with the capability to record up to eight feeds simultaneously.

What can you view?

The Surgeon's Perspective: Any professional in the operating room can wear a headset to share their point of view, allowing you to see exactly what the surgeon is focusing on.

The Full Operating Room: With a 360º camera, you can observe everything happening in the OR, giving you a view that's virtually identical to being there in person.

The Team's Visuals: Gain access to any video images being used by surgeons, anesthetists, and assistants, including feeds from endoscopes, arthroscopes, X-rays, ultrasounds, and more.

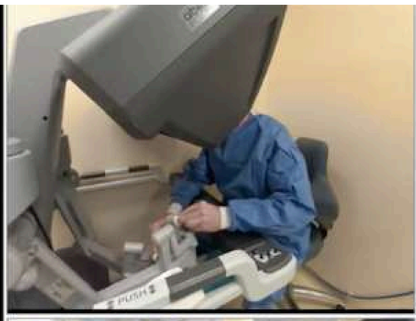
Robotic Surgery Console Views: The exclusive view from the Da Vinci surgical robot's console is no longer just for the primary surgeon—you can now experience it in 3D.

Communication in Real-Time: Whether it's spoken instructions or digital annotations on the screen, you can follow along with every piece of critical information.

mSurgery adapts to any type of surgery and technology, regardless of brand or operating room setup. Every surgical procedure has its ideal way to be viewed, and mSurgery is fully customizable to provide the best external perspective for each unique situation.

Visual Quality

Understanding that details are crucial in surgery, we are committed to delivering the highest image quality available from the operating room. If the medical equipment transmits in 4K UHD, mSurgery ensures that same level of quality is reproduced. When using 360º cameras, true immersive realism begins at 4K resolution. While we can't enhance the inherent quality of what's captured in the OR, we can certainly enhance the overall viewing experience



Open Surgeries: The Value of the Surgeon's Direct View

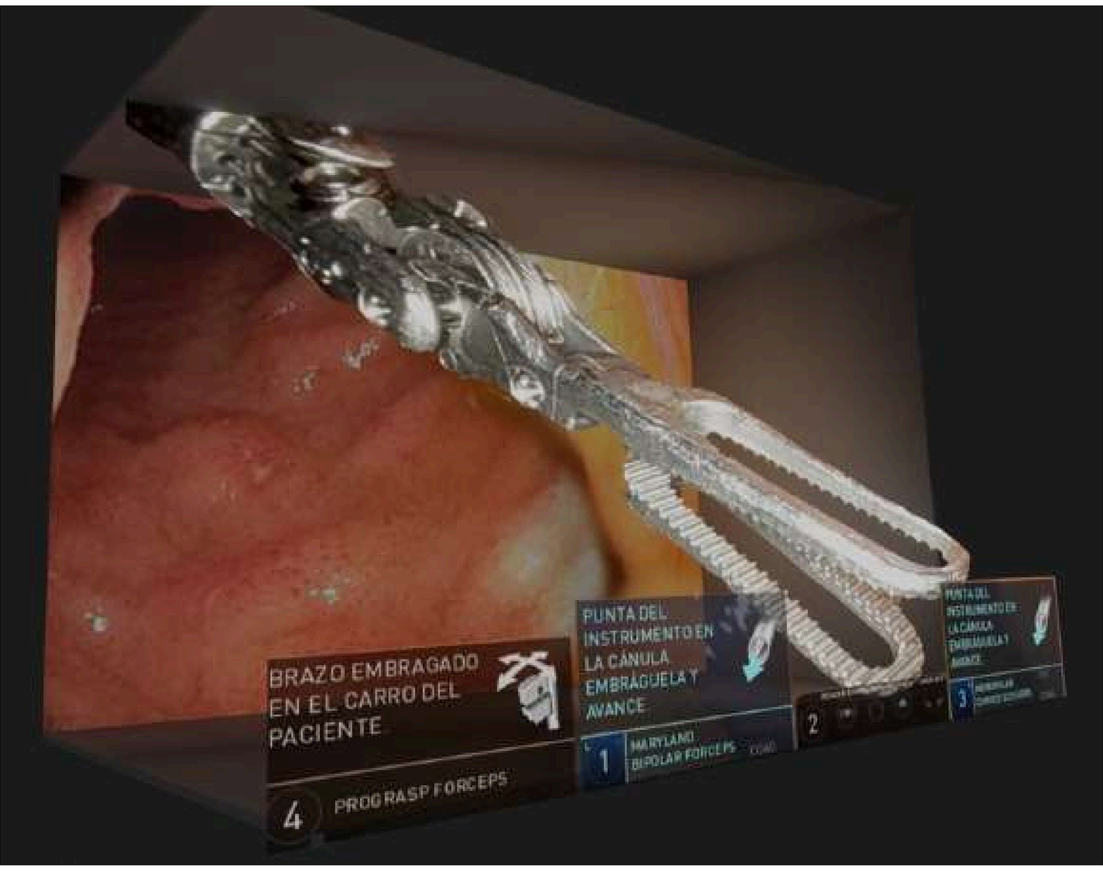
With **mSurgery**, capturing a close-up view of the patient's body during open surgeries is effortlessly achievable. By simply equipping the surgeon with comfortable, high-quality image transmission glasses, the real-time visual can be shared with students connected to mSurgery. **Hands-free**, the surgeon can carry out the procedure while comfortably explaining each step. **Seeing and hearing exactly what the surgeon does offers unparalleled educational value.**

Guided During Surgery

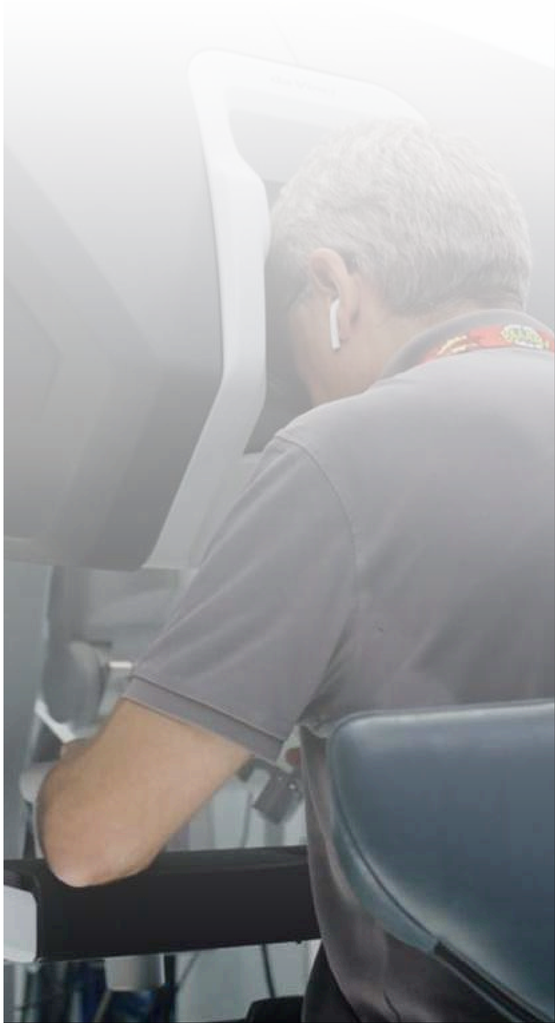
Advancements in technology are increasingly assisting surgeons in both the planning and execution of procedures. By using augmented reality glasses, surgeons have access to valuable electronic information projected directly onto the lenses of these devices—**3D projections of the patient's organs, images from electronic microscopes, X-ray arcs, and more**. All of this information is also available within the mSurgery vision grid as an additional source. **This level of insight cannot be replicated inside the operating room without mSurgery.**

3D Vision

As medical devices increasingly adopt stereoscopic formats, they provide a depth of vision that enhances precision during procedures. The **Da Vinci surgical robot** is perhaps the best-known device on the market for showcasing these advantages, and many manufacturers are following this trend by integrating 3D video capabilities. However, it's important to note that **our brains require training to effectively process this type of vision.**



mSurgery offers true 3D streaming—what's seen on the Da Vinci console can be viewed through VR or immersive AR glasses. This functionality helps **train students to adapt to 3D vision**, making them much more comfortable with any device that utilizes this technology. When they eventually sit at the controls of a robotic console, their brains will already be conditioned for this enhanced visual format.



Total Immersion with 360° Holistic Vision

mSurgery's 360° camera **provides a comprehensive view of the surgical field**, enabling students to virtually "teleport" into the operating room. Using VR headsets, they can explore the environment from any angle, gaining a holistic understanding of team dynamics and ongoing procedures. **This immersive feature enhances learning and better prepares students for real-life scenarios with increased confidence and skill.**

Integrated eLearning Platform

mSurgery is an **eLearning platform revolutionizing surgical education by transforming the operating room into an advanced training space**. It offers immersive experiences via VR, interactive webinars, and on-demand video content for flexible learning. Trainers can create "master classes" and **use assessment tools to track student progress and personalize instruction.**