

2019

The Future of Healthcare Delivery

Ryan Cvelbar
University of Richmond

Follow this and additional works at: <https://scholarship.richmond.edu/osmosis>



Part of the [Life Sciences Commons](#), and the [Medicine and Health Sciences Commons](#)

Recommended Citation

Cvelbar, Ryan (2019) "The Future of Healthcare Delivery," *Osmosis Magazine*: Vol. 2019 : Iss. 2 , Article 9.
Available at: <https://scholarship.richmond.edu/osmosis/vol2019/iss2/9>

This Article is brought to you for free and open access by the University Publications at UR Scholarship Repository. It has been accepted for inclusion in Osmosis Magazine by an authorized editor of UR Scholarship Repository. For more information, please contact scholarshipprepository@richmond.edu.

The Future of Healthcare Delivery

Ryan Cvelbar

The advancement of modern technology is a perpetual cycle that enhances the current ways in which we live and our quality of life, while also improving upon older technological conceptions. Just recently, virtual reality (VR), has risen to the top as a result of the media's fascination with the profound level of sophistication with which the product operates. The first concept of virtual reality was developed in 1968 by Ivan Sutherland.¹ Since then, Sutherland's rudimentary invention has blossomed, as have its potential applications in life irrespective of the entertainment industry with which it is most commonly associated. Specifically, virtual reality's applications in the healthcare industry are unprecedented and endless. As a matter of fact, the virtual reality market in medicine is "projected to grow to \$3.8 billion by 2020, according to a report by Global Industry Analysts," and "Grand View Research predicts this market to grow to a whopping \$5.1 billion by 2025".² These projections make it apparent that in just a few years, significant and valuable progress will be made in medical VR technology.

In his article "Virtual Reality Breakthroughs in Medicine," Jack Carfagno covers areas where the VR technology is currently making an impact on the healthcare industry. He states that the technology is being used to create virtual models of a patient's anatomy and explains that, "360 degree-models are generated using CT and MRI images".² The ability to create such models has not only allowed surgeons to better understand a patient's condition and identify a treatment, but to also plan how to most efficiently operate in the OR. Moreover, Carfagno argues that, VR has the potential to detect early Alzheimer's disease as "mental satnav that aids in navigation." This can facilitate in the identification of signs or behaviors associated with the onset of Alzheimer's based on the individual's performance in the virtual reality program. Similarly, Carfagno states that "[r]ecent work has found VR to be effective in building balance skills in patients with Parkinson's disease" and maintains that "[t]his system successfully improved patient's obstacle negotiation and balance, as well as their confidence in moving around in their environment".²

Likewise, Claudia Wallis informs her audience of

other avenues virtual reality has taken and by which the technology has benefited patients. One remarkable application she describes is a game called Snow World, which "immerses burn patients in a cool, frozen landscape...temporarily blocking out the real world where nurses were scrubbing wounds, stretching scar tissue and gingerly changing dressings".³ Similarly, she writes about a burn surgeon, Abraham Difede, who "aims to quantify the pain-distraction effects of...a charming VR game in which patients toss balls at giggly cartoon bears...measuring whether burn patients need lower doses of intravenous painkillers while playing".³

The applications in which VR is relevant extend even further than treatment of the patient in the hospital. Wallis continues her exploration of the benefits of VR as she turns her attention to, 'exposure therapy'. Precisely, she describes exposure therapy as, "[t]he approach in which patients mentally revisit the source of their trauma guided by a therapist... In VR, patients do not merely reimagine the scene, they are immersed in it".³ The implementation of VR in psychology has enhanced the client's ability to identify the source of their negative emotions and to confront them. As Difede explains, "[w]e're teaching the brain to process and organize the memory so that it can be filed away and no longer intrudes constantly in the patient's life;" and provides evidence of the program's effectiveness stating "[o]ne 2010 study with 20 patients found that 16 no longer met the criteria for PTSD after VR treatment" (Wallis). Wallis states that "[t]herapists can even customize scenes in the program to match a patient's experience. A keystroke can change the weather, add the sound of gunfire or the call to prayers. To think that the program can be customized to such a great extent is incredible.

As you can see, the applications of virtual reality in medicine are countless and even more so with respect to the patient. Often times, people jump to the conclusion that the doctor is the one benefiting from the inclusion of groundbreaking technologies in medicine, but virtual reality is an exception that manages to benefit everyone.

References

1. "History Of Virtual Reality." Virtual Reality Society, [https://www.vrs.org.uk/virtual-reality/history.html#targetText=In 1968 Ivan Sutherland and, ceiling \(hence its name\).](https://www.vrs.org.uk/virtual-reality/history.html#targetText=In 1968 Ivan Sutherland and, ceiling (hence its name).)
2. Carfagno, Jack, et al. "Top 4 Virtual Reality (VR) Breakthroughs in Medicine." Docwire News, 18 June 2019, <https://www.docwirenews.com/docwire-pick/top-4-virtual-reality-vr-breakthroughs-in-medicine/>.
3. Wallis, Claudia. "How Virtual Reality Will Transform Medicine." Scientific American, 1 Feb. 2019, <https://www.scientificamerican.com/article/how-virtual-reality-will-transform-medicine/>.