

Using Virtual Reality to Showcase Cancer Research in Wales

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Cancer Research in Virtual Reality

Using Virtual Reality (VR) in cancer care and research has gained attention in recent years. A systematic review published in 2015, identified nineteen studies that explored effects of using VR interventions with cancer patients, for example rehabilitation at home. Results suggested that VR interventions improve wellbeing and decrease psychological problems associated with cancer¹. VR has also been used as a distraction therapy during cancer treatments such as chemotherapy² and as an aid to surgery planning and training³.

We did something slightly different. We used VR to showcase the brilliant cancer research being conducted here in Wales. This was an exciting way to engage the public in cancer research by letting them (virtually) step into the labs where cutting edge research is taking place.



Exciting Collaboration between Tenovus Cancer Care and Orchard Media

For our 75th birthday in 2018, Orchard Media kicked off our Pass the Pledge Parcel campaign by pledging to create a 360 degree immersive virtual reality (VR) experience. This experience started in a Tenovus Cancer Care shop and took the viewer to a research lab, showing how a simple donation gets turned into lifesaving cancer research.

Tenovus Cancer Care, Orchard Media and The British Society for Immunology

Building on the success of our first VR film, this year we made a second film about immunotherapy. Our Research Engagement Manager, Lisa Whittaker, worked with Sarah Galloway and Georgina Mason, PhD students funded by Tenovus Cancer Care, to create a VR experience showcasing their cancer research. This was made possible with funding from the British Society for Immunology.

Sarah and Georgina are both working on projects which harness the bodies' immune system to recognise and kill cancer cells. This experience starts in the lab with Sarah and Georgina and then travels inside the body to see how T-cells work.



Showcasing Cancer Research in Wales in Virtual Reality

Sarah's research is on killer T-cells, the main immune cells that recognise cancer. Sarah is trying to understand which T-cell receptors are used in patients that successfully clear their cancer; by understanding how this works we can replicate the success in other patients with other types of cancer. Georgina's research is on T-cell receptors that play a role in protecting tumours from immune attack. This type of immunotherapy research focusses on harnessing our immune system to fight cancer. It works by helping the immune system recognise and attack cancer cells and could revolutionise the way we treat cancer in the future.

Benefits of this partnership and collaboration

We showcased our second VR film at Merthyr's first science festival - Bitesize Science Fest on 20th July 2019. It was extremely popular with a wide range of people of all ages. This collaboration further strengthened our relationship with Orchard Media and drew on our respective expertise. The outcome of this collaboration was two innovative and exciting resources which enable us to give people an insight into the vital cancer research we fund in Wales. We use these films as conversation starters, the younger viewers loved the animated 'into the body' part and the chance to meet Sarah and Georgie in person. The adults found the explanation of immunotherapy treatment fascinating and had lots of questions about cost, whether it's currently being offered and what the future could hold for this type of cancer treatment.

References

¹Chirico, A., Lucidi, F., De Laurentis, M., Milanese, C., Napoli, A. & Giordano, A. (2016). Virtual Reality in Health System: Beyond Entertainment. A Mini-Review on the Efficacy of VR During Cancer Treatment. *Journal of Cellular Physiology*, 231(2), 275-287. ² Gershon, J., Zimand, E., Pickering, M., Rothbaum, B. O. & Hodges, L. (2004). A Pilot and Feasibility Study of Virtual Reality as a Distraction for Children With Cancer. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(10), 1243-1249. ³ Erin, A. (2015, October 10). Surgical Simulation Training: Is Virtual Reality The Future of Surgical Training. Accessed from <https://elearningindustry.com/surgical-simulation-training-virtual-reality-future-surgical-training>.