

# Starlight Virtual Reality

## Program Overview



Starlight Virtual Reality is a groundbreaking, state-of-the-art technology program that radically transforms the hospital experience for kids by transporting them out of the hospital and into a virtual world. It is an engaging intervention that helps decrease anxiety and pain for children, and also provides dynamic content geared toward entertainment and distraction such as virtual snowball fights, immersive field trips to exotic locations, fun video games, and more.



*"Starlight Virtual Reality has been a game changer at Children's Hospital Colorado. Having an all-in-one system designed specifically to be used in a healthcare setting has accelerated adoption by our institution and multiplied by the number of patients exposed to virtual reality. With a diverse library of games and experiences vetted and ready to go, Starlight Virtual Reality is perfect for procedural support, distraction, mindfulness, and even just for fun!"*

–Dr. James Thomas, Pediatric Anesthesiologist, Children's Hospital of Colorado

## Reach

Since 2018, **1,371 Starlight Virtual Reality headsets** have transformed the hospital experience for **18,927 children** at **310 healthcare facilities** in 48 states.

## Program Impact

### Play



- Starlight Virtual Reality is a highly interactive entertainment experience that directly engages children through either structured activity (e.g., games that require children to follow a set of rules and norms) or unstructured "immersive relaxation".
- Starlight provides seriously ill children with incredible experiences they may not be able to have outside of a hospital. Starlight Virtual Reality does that by delivering games, apps, and learning opportunities that are exclusive to pediatric care.
- Our hospital partners have expressed deep gratitude to Starlight Virtual Reality – the kids receiving treatment in reality can be healers through play in the world of virtual reality. It gives them some control in an uncontrollable situation.
- What we have created through Starlight Virtual Reality will continue to make a difference and bring smiles and delight where there have been sadness and fear.



## Entertainment

- Our hospital partners tell us that Starlight Virtual Reality combines the best of two worlds: entertainment and education, making learning fun and a child's stay in the hospital just a little better.
- Starlight Virtual Reality allows children to be completely immersed in content that is age-appropriate, enjoyable, stimulating, educational, and fun to watch.



## Normalization

- *"I like that I can be in the ocean without having to be there."* –Zoe, Starlight Kid, 10, Children's Hospital of Colorado
- Starlight Virtual Reality has a normalizing effect on seriously ill children because it helps an unfamiliar and often scary place, such as a hospital, feel safe and fun – or, "normal" – by providing access to the types of games, apps, and activities they're able to enjoy in their everyday life.



## Procedural Support

- *"At Gillette Children's Specialty Healthcare, virtual reality has been a fantastic addition for our patients in the clinical setting. In some instances, instead of prescribing medications, we've been able to curb the anxiety and fears our kids typically experience during medical procedures such as blood draws, transfusions, wound cleanings, casting and more. It's a wonderful distraction for kids and parents alike."*  
–Chantel Barney, PH. D, Clinical Scientist, Gillette Children's Specialty Healthcare
- Healthcare providers have seen that virtual reality increases procedural cooperation while decreasing anxiety and stress in turn resulting in less challenging and stressful medical procedures (Li et al., 2011).<sup>2</sup>



## Emotional Support

- *"Starlight Virtual Reality puts the children back in control of their care. It's giving them a tool that they can control their level of immersion, instead of feeling like they're having stuff done to them. Any way we can put the kid back in control of their situation—especially with something that's fun—is a win."*  
–Dr. Joe Albietz, Medical Director of Child Life, Children's Hospital of Colorado
- The power-differential is clear and felt between patient and provider in a clinical environment. By simply providing developmentally-appropriate choices, anxiety can be reduced, and emotional containment can be provided to a patient (Lerwick, 2016).<sup>3</sup>



## Pain Management

- *"It was such a fun distraction from the hospital. When playing the fishing game and doing the relaxation apps, I did not feel any pain."*  
–Tiahna, Starlight Kid, 15, Ann & Robert H. Laurie Children's Hospital of Chicago
- Virtual reality has been used to manage pain and distress associated with a wide variety of painful medical procedures. In clinical settings and experimental studies, participants immersed in VR experience reduced levels of pain, general distress/unpleasantness and report a desire to use VR again during painful medical procedures (Li et al., 2011).<sup>2</sup>
- Immersive VR is a promising and engaging intervention that may help to decrease pain and anxiety for children undergoing painful procedures and suffering from acute pain (Won et al., 2017).<sup>1</sup>



## Physical Therapy

- Virtual reality offers an engaging opportunity for children to practice motions that would be impossible or unsafe in the real world (Won et al., 2017).<sup>1</sup>
- Patients exposed to virtual reality as a part of their physical therapy report lower ratings of pain and an increased range of motion.

## The Future

- Starlight aims to have approximately 2,500 Starlight Virtual Reality headsets in circulation at pediatric facilities across the country by the end of 2020. The ultimate goal is that every children's hospital and pediatric unit is equipped with enough Starlight Virtual Reality headsets to meet their needs.
- Starlight is working to create more virtual reality content and launch a companion app that would mirror the VR content to a phone or tablet in order to allow a medical professional or guardian to see, guide, or curate content for the patient.
- Starlight is making advancements in the quality of the experience in order to improve outcomes for patients prone to dizziness and nausea.
- Starlight will continue to work on specialized content creation like 360° custom hospital tours and community/multi-player apps. Starlight's goal is to enable hospitals to create their own VR content (with cameras supplied by Starlight) in order to construct content specific to their facility.

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<sup>1</sup> Won, A. S., Bailey, J., Bailenson, J., Tataru, C., Yoon, I. A., & Golianu, B. (2017). Immersive Virtual Reality for Pediatric Pain. *Children (Basel, Switzerland)*, 4(7),52. doi:10.3390/children4070052

<sup>2</sup> Li, A., Montano, Z., Chen, V J., Gold, J I., (2011). Virtual reality and pain management: current trends and future directions.

<sup>3</sup> Lerwick J. L. (2016). Minimizing pediatric healthcare-induced anxiety and trauma. *World journal of clinical pediatrics*. 5(2), 143–150.doi:10.5409/wjcp.v5.i2.143